

HITACHI

SOLID STATE COLOR TV

35TX20B

31CX5B

32CX7B

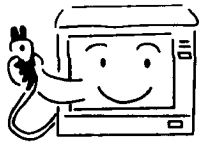
31CX6B

OPERATING GUIDE



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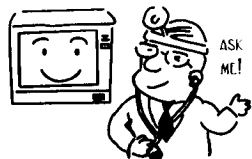
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IMPORTANT

Your new HITACHI COLOR TV incorporates a host of features designed to give you excellent performance if you follow the instructions in this manual. We recommend that you read the following instructions and "IMPORTANT SAFETY GUARDS" notice before turning on your TV set for the first time.

Follow all warnings and instructions marked on this television receiver.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

 The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

 The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT
EXPOSE THIS TELEVISION SYSTEM TO RAIN OR MOISTURE.**

NOTE:

- There are no user serviceable parts inside the receiver.
- Model number and serial number are indicated on back side of the set.

POWER SOURCE:

This HITACHI color TV is designed to operate on 120 volts 60 Hz, AC household current.
Insert power cord into a 120 volt 60 Hz outlet.

**TO PREVENT ELECTRIC SHOCK, DO NOT USE THE TELEVISION'S PLUG WITH AN EXTENSION CORD,
RECEPTACLE, OR OTHER OUTLET UNLESS THE BLADES AND GROUND TERMINAL CAN BE FULLY
INSERTED TO PREVENT BLADE EXPOSURE.**

**NEVER CONNECT THE TV TO 50 Hz, DIRECT CURRENT, OR ANYTHING OTHER THAN THE SPECIFIED
VOLTAGE.**

NOTE: This television receiver will display television closed captioning, ( or ), in accordance with paragraph 15.119 of the FCC rules.

SAFETY TIPS



IMPORTANT SAFEGUARDS

CAUTION:

- * Read all of these instructions
- * Save these instructions for later use.
- * Follow all warnings and instructions marked on the television receiver.

Our reputation has been built on the quality, performance, and ease of service of HITACHI television receivers.

Safety is also foremost in our minds in the design of these units. To help you operate these products properly, this folder illustrates safety tips which will be of benefit to you. Please read it carefully and apply the knowledge you obtain from it to the proper operation of your HITACHI television receiver.

Please fill out your warranty card at once and mail it to HITACHI. This will enable HITACHI to notify you promptly in the improbable event that a safety problem should be discovered in your model of product.

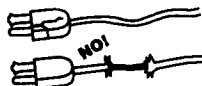
SAFETY POINTS YOU SHOULD KNOW ABOUT YOUR HITACHI TELEVISION RECEIVER

FOR YOUR PERSONAL SAFETY

- 1 This television set is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.



- 2 When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.



- 3 Do not overload wall outlets and extension cords as this can result in fire or electric shock.



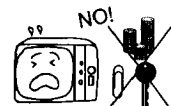
- 4 Do not allow anything to rest on or roll over the power cord, and do not place the TV where the power cord is subject to traffic or abuse. This may result in a shock or fire hazard.



- 5 Do not attempt to service this television set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.



- 6 Never push objects of any kind into this television set through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television set.



- 7 If the television set has been dropped or the cabinet has been damaged, unplug this television set from the wall outlet and refer servicing to qualified service personnel.



- 8 If liquid has been spilled into this television set, unplug it from the wall outlet and refer service to qualified service personnel.



- 9 Do not subject your television set to impact of any kind. Be particularly careful not to damage the picture tube surface.



- 10 Unplug this television set from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.



- 11-1 Do not place this television set on an unstable cart, stand, or table. The television set may fall, causing serious injury to a child or an adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the television set. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.



- 11-2 An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



PROTECTION AND LOCATION OF YOUR SET

- 12 Do not use this television set near water, for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.



- Never expose the set to rain or water. If the set has been exposed to rain or water, unplug the set from the wall outlet and refer to servicing personnel.



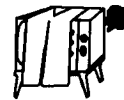
- 13 Choose a place where light (artificial or sunlight) does not shine directly on the screen.



- 14 Avoid dusty places, since accumulated dust inside the chassis may cause failure of the set when high humidity persists.



- 15 The set has slots, or openings in the cabinet for ventilation purposes, to provide reliable operation of the receiver, and to protect from overheating. These openings must not be blocked or covered.



- Never cover the slots or openings with cloth or other material.



- Never block the bottom ventilation slots of the set by placing it on a bed, sofa, rug, etc.



- Never place the set near or over a radiator or heat register.



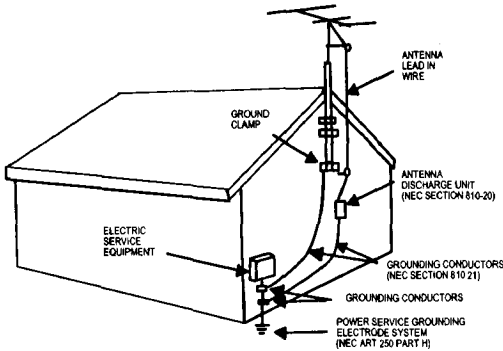
- Never place the set in a "built-in" enclosure, unless proper ventilation is provided.



SAFETY TIPS

PROTECTION AND LOCATION OF YOUR SET

- 16-1 If an outside antenna is connected to the television set, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges, Section 810 of the National Electrical Code, NFPA No. 70-1975, provides information with respect to proper grounding of the mast and supporting structure,

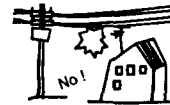


NEC NATIONAL ELECTRICAL CODE
EXAMPLE OF ANTENNA GROUNDING AS PER
NATIONAL ELECTRICAL CODE INSTRUCTIONS

grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrode, and requirements for the grounding electrode.

- 16-2 Note to CATV system installer:
(Only for the television set with CATV reception)
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

- 17 An outside antenna system should not be located in the vicinity of overhead power lines or other electrical lights or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.



- 18 For added protection for this television set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna. This will prevent damage due to lightning and power-line surges.



OPERATION OF YOUR SET

- 19 This television set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply at your home, consult your television dealer or local power company. For television sets designed to operate from battery power, refer to the operating instructions.



- 20 If the television set does not operate normally by following the operating instructions, unplug this television set from the wall outlet and refer servicing to qualified service personnel. Adjust only those controls that are covered in the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television set to normal operation.



- 21 When going on a holiday: If your television set is to remain unused for a period of time, turn the television set "off" and unplug it from the wall outlet.



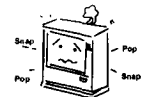
IF THE SET DOES NOT OPERATE PROPERLY

- 22 If you are unable to restore normal operation by following the detailed procedure in your operating instructions, do not attempt any further adjustment. Unplug the set and call your dealer or service technician.



- 23 Whenever the television set is damaged or fails, or a distinct change in performance indicates a need for service, unplug the set and have it checked by a professional service technician.

- 24 It is normal for some TV sets to make occasional snapping or popping sounds, particularly when being turned on or off. If the snapping or popping is continuous or frequent, unplug the set and consult your dealer or service technician.



FOR SERVICING AND MODIFICATION

- 25 Do not use attachments not recommended by the television set manufacturer as they may cause hazards.

- 26 When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.



- 27 Upon completion of any service or repairs to the television set, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.





WARNING

Continuous on-screen displays such as video games, stock market quotations, computer generated graphics, and other fixed (non-moving) patterns can cause permanent damage to color television receivers. Such "PATTERN BURNS" constitute misuse and are NOT COVERED by your Hitachi Factory Warranty.

When using the Picture-in-Picture function, the sub-picture should not be left permanently in one corner of the screen or a "pattern burn" may develop over a long period of time.

This Color television receiver was intended mainly for the private viewing of programs broadcast by TV stations and cable companies and programs from other video sources. Public viewing may require prior authorization from the broadcaster or owner of the video program.

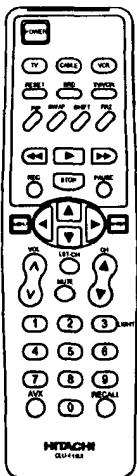
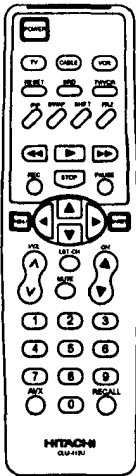
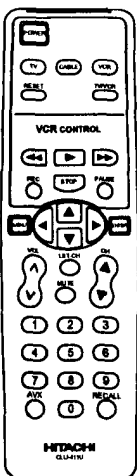
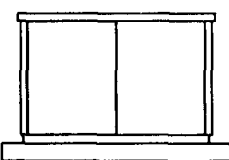


ACCESSORIES

Check to make sure you have the following accessories before disposing of the packing material.

1. Remote Control Unit (See Part No. Below)
2. Two "AA" size, 1.5V batteries (For Remote Control Unit)

For information regarding how to obtain these accessories, please call TOLL FREE 1-800-448-2244 for your nearest HITACHI Authorized Parts Distributor in the continental United States. For Alaska and Hawaii, please contact your nearest HITACHI Regional office.

PART NAME	PART NO.	ILLUSTRATION		
32CX7B, 35TX20B CLU-415UI REMOTE TRANSMITTER	HL00224			
31CX6B CLU-412U REMOTE TRANSMITTER	HL00221			
31CX5B CLU-411U REMOTE TRANSMITTER	HL00231			
31V TELEVISION STAND SP316B (Not included, order separately)	H530022			
31V/32V TELEVISION STAND SP317B (Not included, order separately)	H530023 (Upgrade)			
35V TELEVISION STAND SP351B (Not included, order separately)	H530024			
		CUSTOM HITACHI TELEVISION STAND Excellent for VCR and videotape storage. Special Features: curved smoke glass doors, adjustable shelf. Available in Black.		



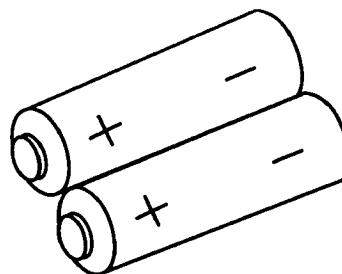
CAUTION: The television stand model SP316B, SP317B and SP351B is designed for use only with HITACHI TV models 31CX5B, 31CX6B, 32CX7B and 35TX20B. Use with other television equipment may result in instability, causing possible injury.

REMOTE CONTROL BATTERY INSTALLATION AND REPLACEMENT



1. Open the battery cover of the remote transmitter by pushing the notched part of the cover with your fingers.

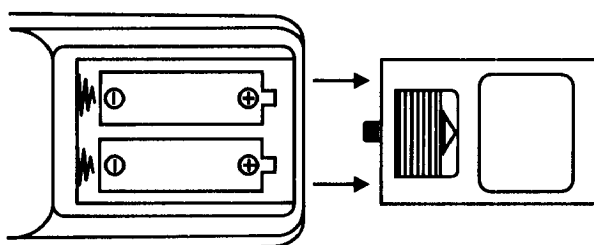
2. Insert new "AA" size (SUM-3) batteries or equivalent for the Genius Remote. When replacing old batteries, push them towards the springs and lift them out.



3. Match the (+) and (-) marks in the battery compartment.

BOTTOM VIEW

4. Replace the cover.



CAUTIONS

1. If your television set is to remain unused for a long period of time, for instance, when you go on a vacation, unplug the television set from the wall outlet.
2. Do not subject the Remote Transmitter to shocks such as dropping it on the floor, etc. Precision parts may be damaged.
3. Do not allow the Remote Transmitter to become wet and avoid placing it in areas of high humidity. Don't leave it on or near a heater. Excess heat or moisture may cause the unit to cease operation.
4. If the batteries become exhausted, Remote Control operation may become erratic or stop altogether. Replace the old batteries with fresh "AA" (SUM-3) types.

NOTES

1. The channel No. indication, volume indication and OFF TIMER indication are not displayed simultaneously.
2. To operate your TV, point the Remote Transmitter at the remote sensor of the TV.



HOW TO SET UP YOUR NEW HITACHI COLOR TV

ANTENNA

Unless your TV is connected to a cable TV system or to a centralized antenna system, a good outdoor color TV antenna is recommended for the best performance. However, if you are located in an exceptionally good signal area that is free from interference and multiple image ghosts, an indoor antenna may be sufficient.

LOCATION

Select an area where sunlight or bright indoor illumination will not fall directly on the picture screen. Also, be sure that the location selected allows a free flow of air to and from the cover of the set.

To avoid cabinet warping, cabinet color changes, and increased chance of set failure, do not place the TV where temperatures can become excessively hot. For example, in direct sunlight or near a heating appliance, etc.

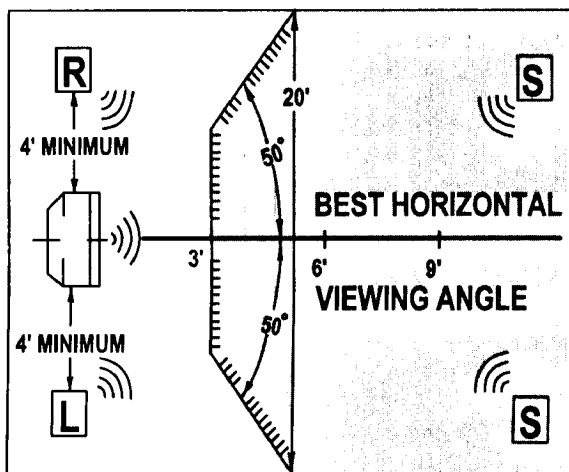
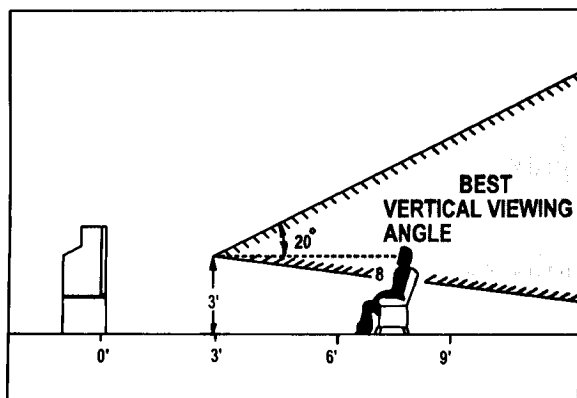
VIEWING

The major benefit of the HITACHI Color Television is its viewing screen. To see this screen at its best, test various locations in the room to find the best spot for viewing. The drawings give several suggestions.

The best picture is seen by sitting directly in front of the TV and about 6 to 9 feet from the screen.

During daylight hours, reflections from outside light may appear on the screen. If so, drapes or screens can be used to reduce the reflection or the TV can be located in a different section of the room.

If the TV's audio output will be connected to a Hi-Fi system's external speakers, the best audio performance will be obtained by placing the speakers equidistant from each side of the receiver cabinet and as close as possible to the height of the picture screen center. For best stereo separation, place the external speakers at least 4 feet from the side of the TV. Place the surround speakers to the side or behind the viewing area. Differences in room sizes and acoustical environments will require some experimentation with speaker placement for best performance.



CAUTION: The magnetic field of external speakers may cause the TV picture to distort if the speakers are placed too close to the television. Move the speakers away from the TV until there is no picture distortion.

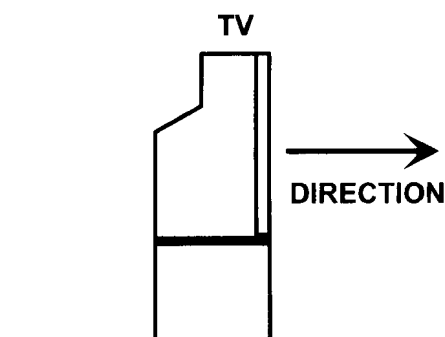
HOW TO SET UP YOUR NEW HITACHI COLOR TV



Before Installation (Geomagnetism Correction) 35TX20B Only

This TV has a super-large color picture tube. The effects of geomagnetism may cause an uneven (partially) colored picture depending on the direction which the TV is facing. Adjust the TV as follows for best performance:

- 1.) Turn the power "OFF".
- 2.) Decide on the installation position and direction of the TV. Check the direction the TV is facing at this time.
- 3.) Set the DIRECTION and STRENGTH switches (on back of the TV) according to the direction of the screen as shown in the table.



SCREEN DIRECTION	SWITCH	
	DIRECTION	STRENGTH
North	N	STRONG
Northeast	*E/W	WEAK
East	E/W	WEAK
Southeast	**E/W	WEAK
South	S	STRONG
Southwest	**E/W	WEAK
West	E/W	WEAK
Northwest	*E/W	WEAK
* If the Screen is facing a Northerly direction, Set to "N".		
** If the screen is facing a Southerly direction, Set to "S".		

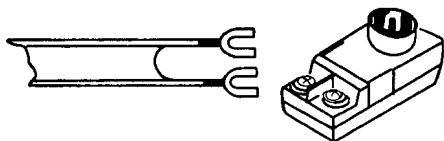
- 4.) After setting the switches, place the TV in the decided location.
- 5.) After relocating the TV, turn the power "ON" and check to make sure that the screen color (especially at the corners) is even. Depending on the installation location (especially where it is susceptible to geomagnetism, for example, in reinforced concrete building), picture color may be uneven even though you have set the switches as described above. In this case, set the DIRECTION and STRENGTH switches to get the optimum picture.
- 6.) In certain areas, if the screen points North or South, color unevenness may be reduced when the STRENGTH switch is set to STRONG rather than WEAK.

NOTE: If you move your TV, the DIRECTION and STRENGTH switches may need to be reset.



HOOK-UP CABLES AND CONNECTORS

Most video/audio connections between components can be made with shielded video and audio cables that have phono connectors. For best performance, video cables should use 75-ohm coaxial shielded wire. Cables can be purchased from most stores that sell audio/video products. Below are illustrations and names of common connectors. Before purchasing any cables, be sure of the output and input connector types required by the various components. Also make sure the cables are the correct length.



300-Ohm Twin Lead Connector

This outdoor antenna cable must be connected to an antenna adaptor (300-Ohm to 75-Ohm).



"F" Type 75-Ohm Coaxial Antenna Connector

For connecting RF signals (antenna or cable TV) to the antenna jack on the television.



Phono Connector

Used on all standard video and audio cables which connect to inputs and outputs located on the Television's front and rear jack panels.



S-Video (Super Video) Connector

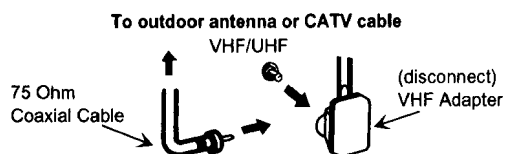
This connector is used on camcorders, VCR's, and laser disc players with an S-Video feature in place of the standard video cable to produce a high-quality picture.

ANTENNA CONNECTIONS

These sets are equipped with one VHF/UHF antenna terminal. The VHF/UHF terminal can be used for normal TV, cable TV (CATV), a TV game, etc.

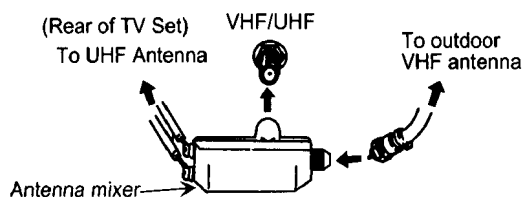
1. VHF (75 Ohm) antenna/CATV

When using a 75 ohm coaxial cable system, disconnect the VHF adaptor from the VHF 75 ohm receptacle and connect the outdoor antenna or CATV cable to a VHF 75 ohm receptacle.



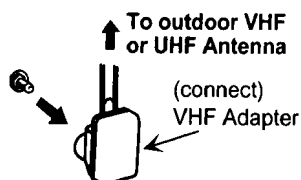
3. When both VHF and UHF antennas are connected

Attach an optional ANT.MIXER to the TV antenna terminal, and connect the cables to the ANT. MIXER.



2. VHF (300 Ohm) antenna/UHF antenna

When using a 300 ohm twin lead from an outdoor antenna, disconnect the (VHF or UHF) indoor antenna leads from screws of the (VHF or UHF) adaptor, and connect outdoor (VHF or UHF) antenna leads to these screws of a (VHF or UHF) adaptor.



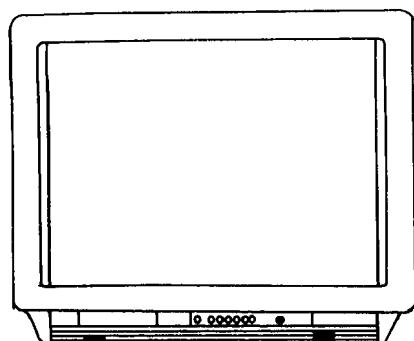
Notes:

1. If an outdoor antenna/CATV is to be used, disconnect the indoor antenna. Do not leave both the indoor and outdoor antennas/CATV connected at the same time, since ghosting and poor reception may result.
2. Consult your dealer or service store for the ANT. MIXER and (VHF or UHF) adaptor.
3. The special converter (decoder) will be supplied by the cable company.

FRONT PANEL CONTROLS FOR 31CX5B AND 31CX6B

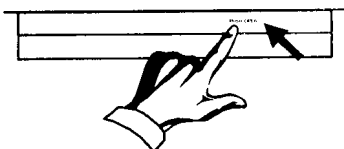


FRONT VIEW

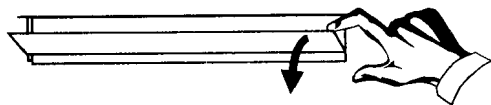


HOW TO OPEN THE DOOR

1. Push letters "PUSH OPEN" on the door.

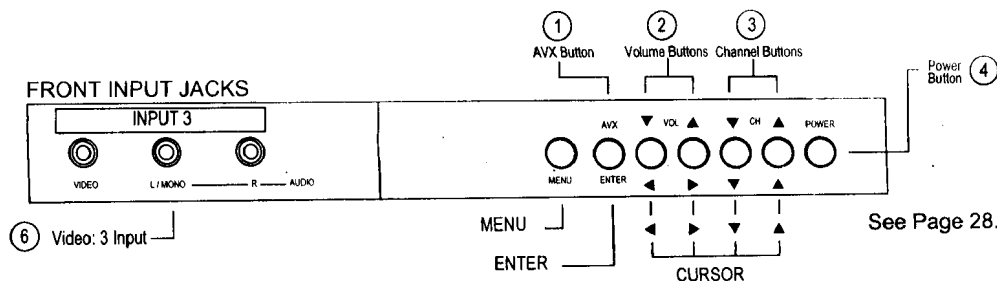


2. Pull the door toward the front to open it.



⑤ Infrared Remote Sensor

INDOOR CONTROLS



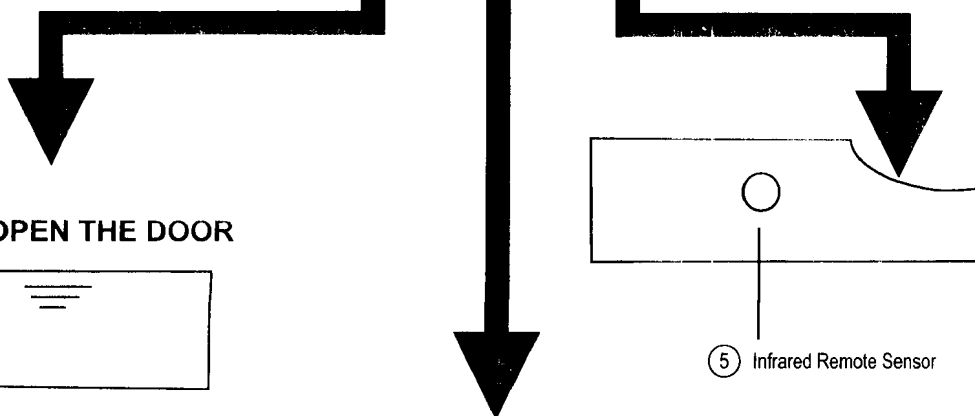
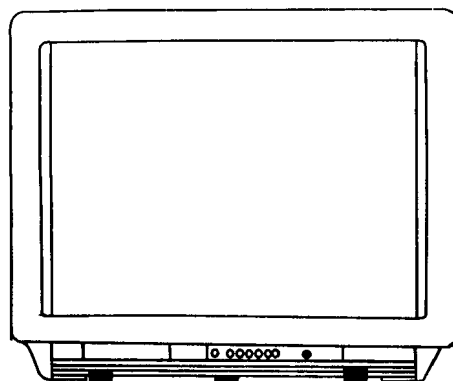
A detailed explanation of the circled numbers is on the following pages. (example: ①).

NOTE: The "Program Icon", "Clock Icon" and Channel Memory Menu in "Set Up" are not displayed using the Front Menu Key. This feature uses the numbered buttons which are not in the front panel and the CH UP/DOWN button is disabled at Menu Function. For complete Menu Icon, use the remote control supplied.



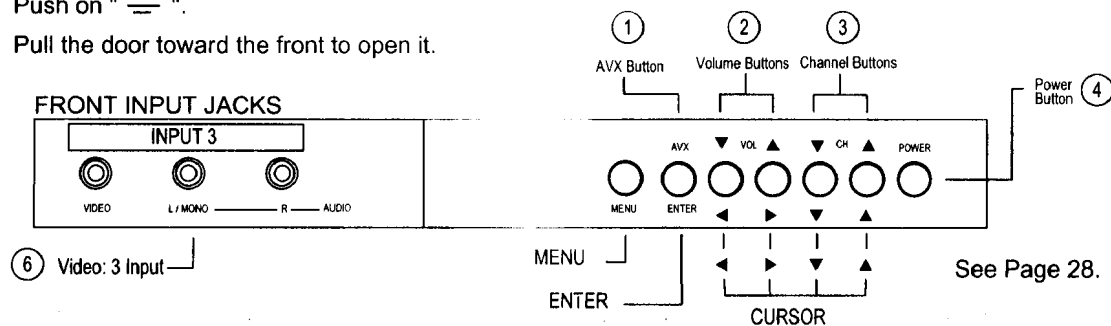
FRONT PANEL CONTROLS FOR 32CX7B

FRONT VIEW



HOW TO OPEN THE DOOR

1. Push on "≡".
2. Pull the door toward the front to open it.



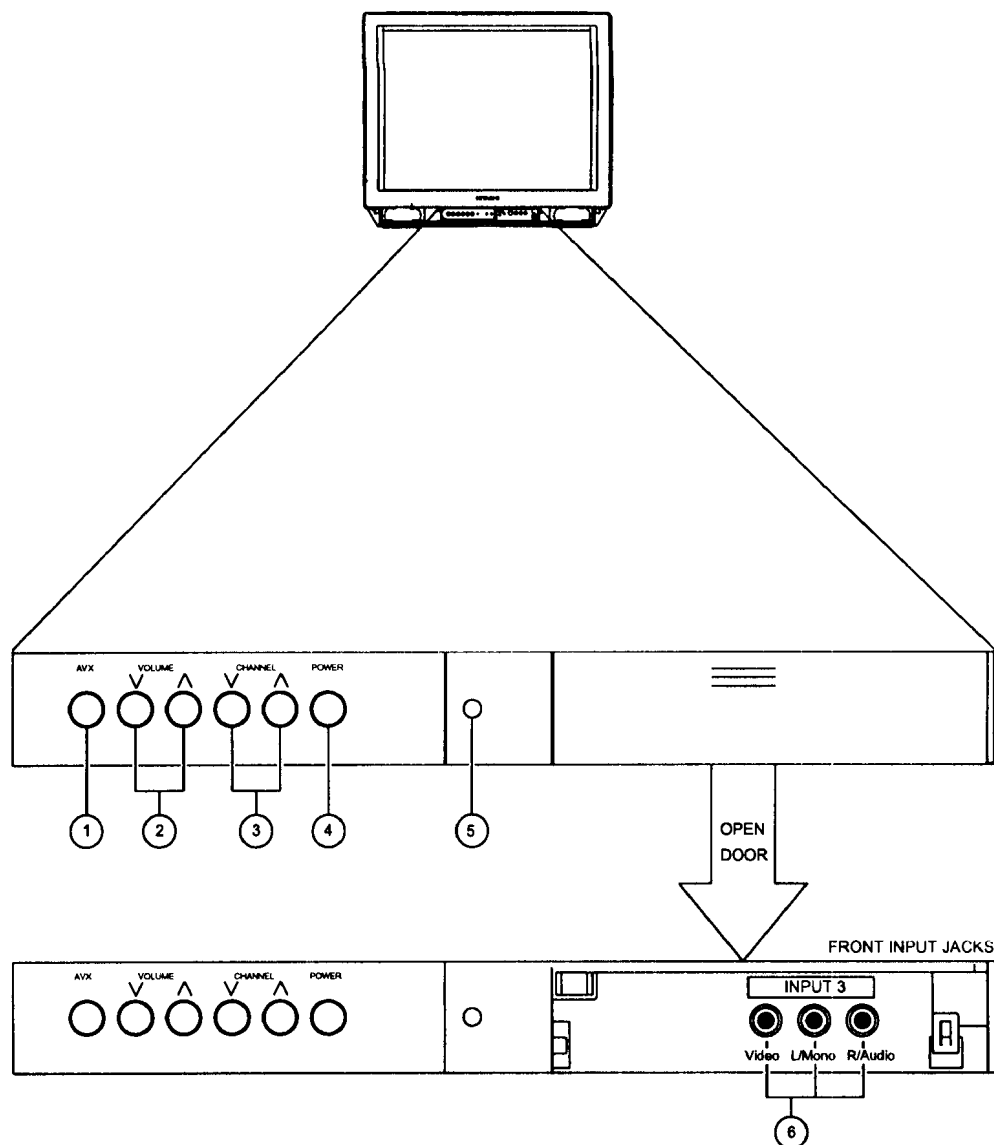
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FRONT PANEL CONTROLS FOR 35TX20B



FRONT VIEW



A detailed explanation of the circled numbers is on the following pages. (example: ①).

NOTE: 35TX20B does not have a front panel control for Menu, Enter and Cursor buttons.



FRONT PANEL CONTROLS

- ① **AVX (Audio/Video) Selector**
Press this button to select the current antenna source or VIDEO: 1, 2 or 3. Your selection is shown in the top right corner of the screen.
- ② **VOLUME Level**
Press these buttons for your desired sound level. The volume level will be displayed on the TV screen.
- ③ **CHANNEL Selector**
Press these buttons until the desired channel appears in the top right corner of the TV screen.
- ④ **POWER Button**
Press this button to turn the TV on or off.

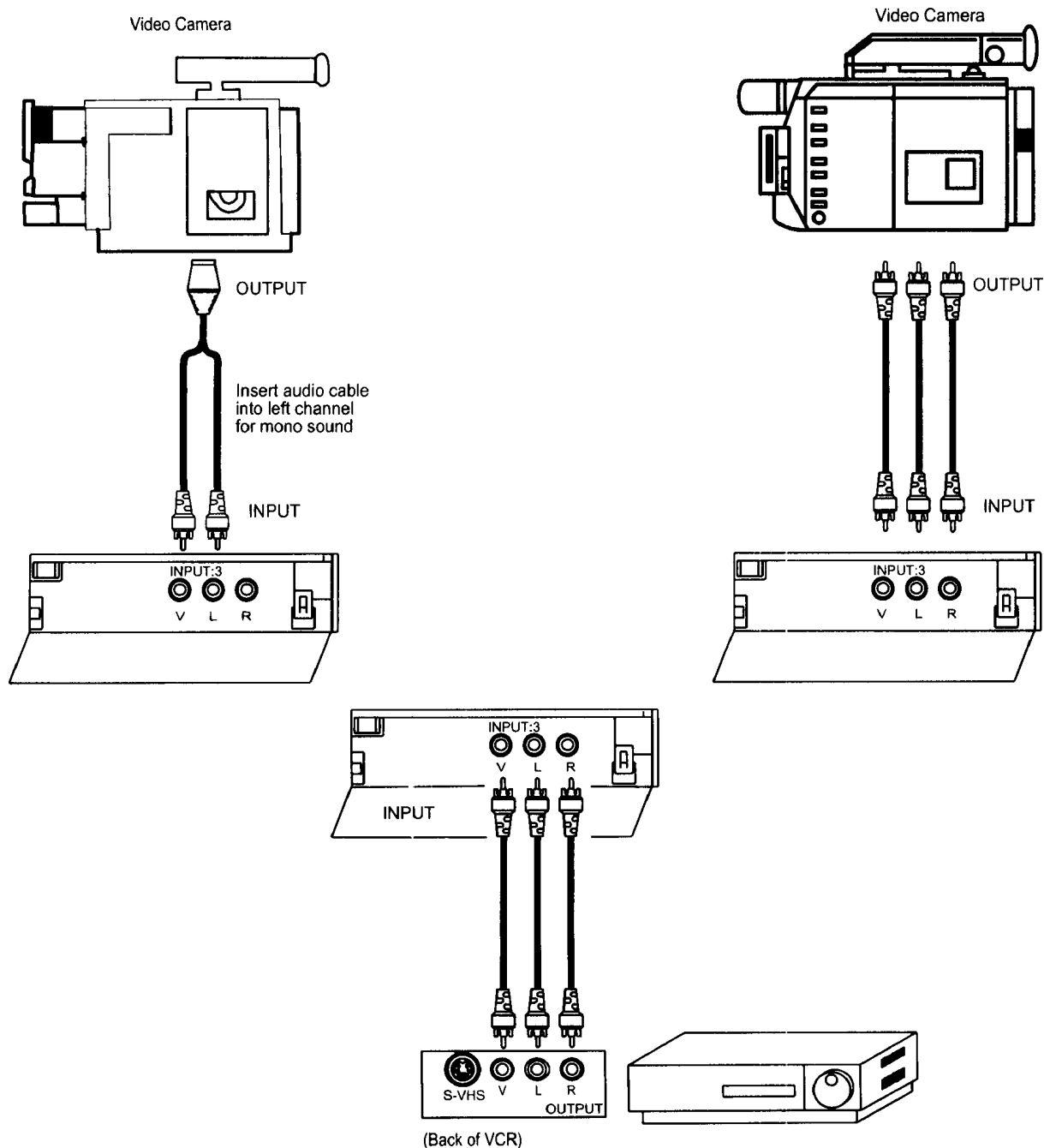
NOTE: Your HITACHI TV will appear to be turned "OFF" if there is no video input when VIDEO: 1, 2, or 3 is selected. If you do not have input to VIDEO 1, 2, or 3, press the AVX button until the normal broadcast picture appears (See page 28). If a picture does not appear, then the power is "OFF".

- ⑤ **REMOTE CONTROL Sensor**
Point your Remote at this area when selecting channels, adjusting volume, etc.
- ⑥ **FRONT INPUT JACKS (for VIDEO: 3)**
Use these audio/video jacks for a "quick" hook-up from a camcorder or VCR to instantly view your favorite show or new recording. (Press the AVX button until VIDEO: 3 appears in the top right corner of the TV screen.)

FRONT PANEL JACKS AND CONNECTIONS



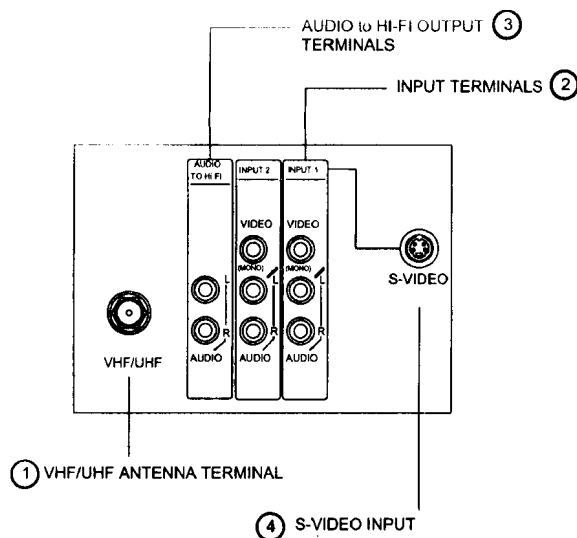
The front panel jacks are provided as a convenience to allow you to easily connect a camcorder or VCR as shown in the following examples:



NOTE: Completely insert the connection cord plugs when connecting to front panel jacks. If you do not, the picture that is played back may be abnormal.



REAR PANEL JACKS



1 Antenna Inputs

The VHF/UHF terminal can be used for normal TV, cable TV (CATV), a TV game, etc.

2 Audio/Video Inputs 1, 2

The "AVX" (Auxiliary video) button will step through each video source and the current antenna input each time it is pressed. Use the audio and video inputs to connect external devices, such as VCR's, camcorders, laser disc players, video games, etc.

3 Audio to Hi-Fi

These jacks provide variable audio output to a separate stereo system amplifier. With this connection, the audio to the stereo can be controlled by the television's remote control. Use these jacks for the SURROUND Left and Right channels. (See page 19 and 22.)

4 S-Video

Input 1 provides S-Video (Super Video) jacks for connecting equipment with S-Video output capability.

TIPS ON REAR PANEL CONNECTIONS

The S-Video connection is provided for high performance laser discs, VCR's, etc., that have this feature. Use this connection in place of the standard video connection if your device has this feature.

If your device has only one audio output (mono sound), connect it to the left audio jack on the TV.

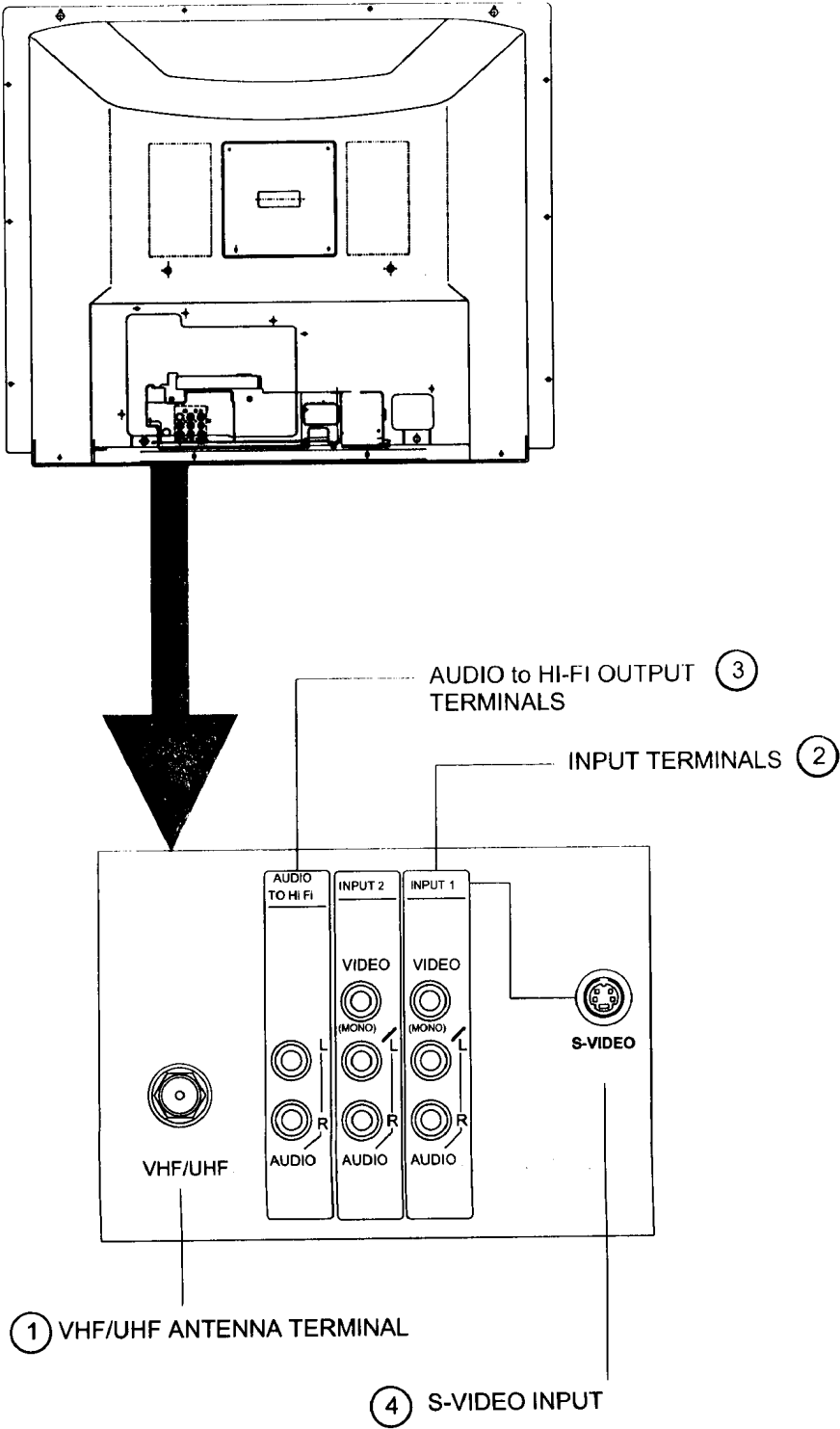
Refer to the operating guide of your other electronic equipment for additional information on connecting your hook-up cables.

A single VCR can be used for VCR #1 and VCR #2, but note that a VCR cannot record its own video or line output (INPUT: 1 in the example on p. 18). Refer to your VCR operating guide for more information on "line" input-output connections.

REAR PANEL JACKS

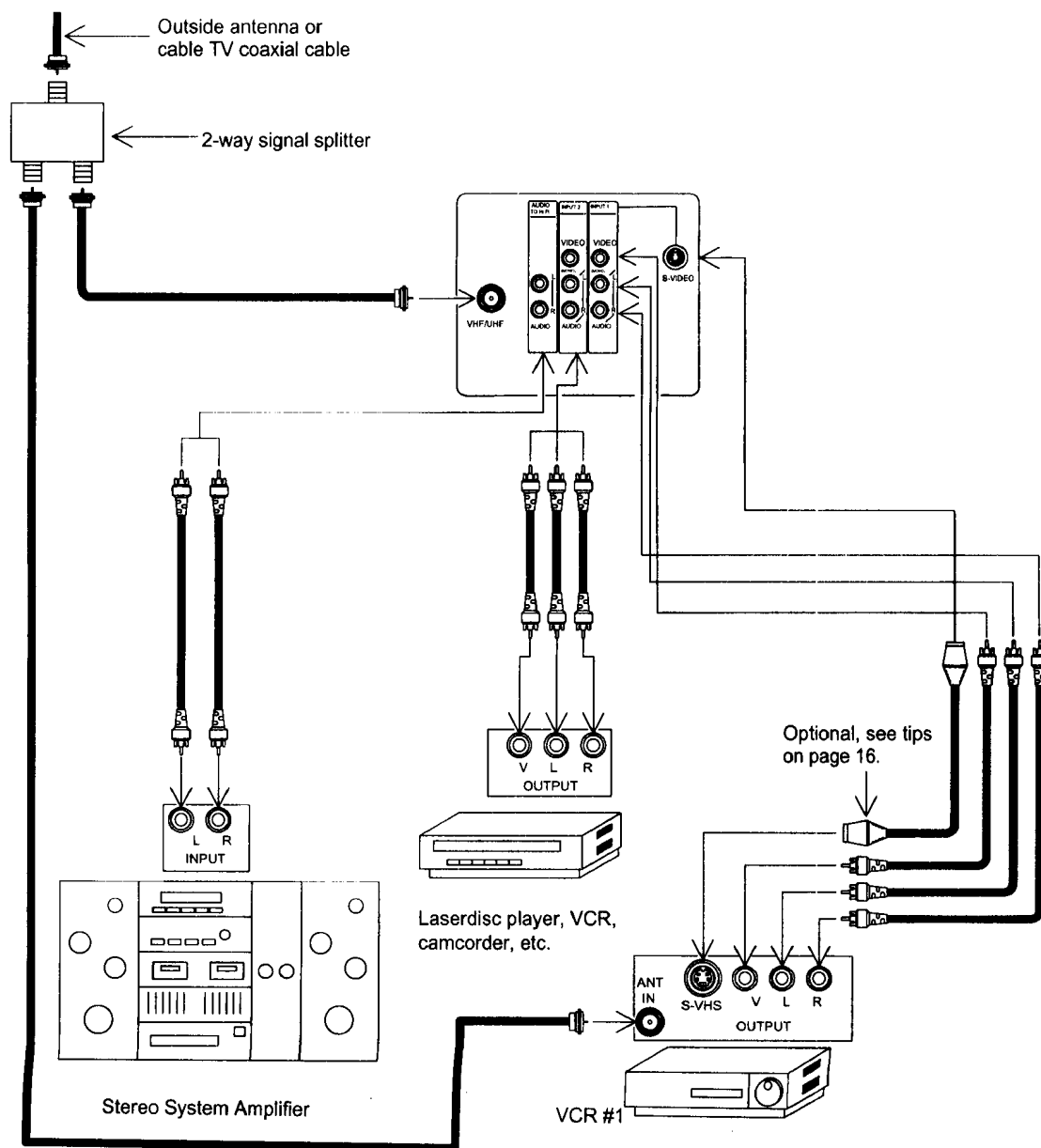


REAR VIEW





REAR PANEL CONNECTIONS



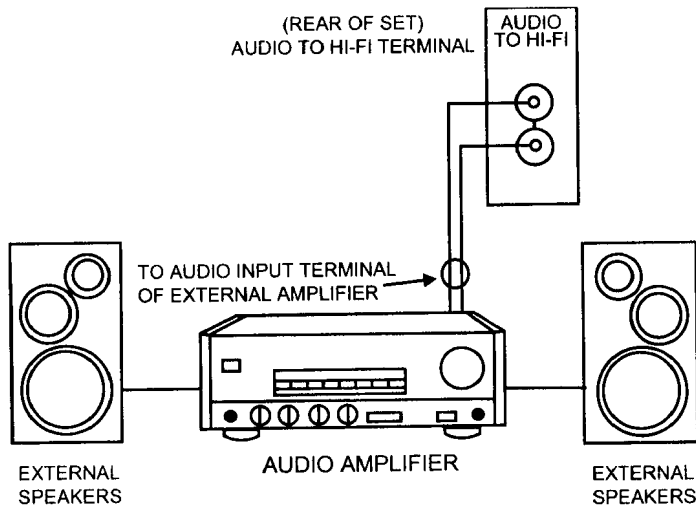
Typical full feature set-up. Follow connections that pertain to your personal entertainment system.

EXTERNAL CONNECTIONS



CONNECTING EXTERNAL AUDIO AMPLIFIER

To control the audio level of an external audio amplifier with the remote transmitter, connect the system as shown below in Fig. 1.



NOTE: To prevent damage to the speaker and distorted sound, set the volume control of the audio amplifier lower and adjust the sound level using the volume control on the remote transmitter of the TV set.

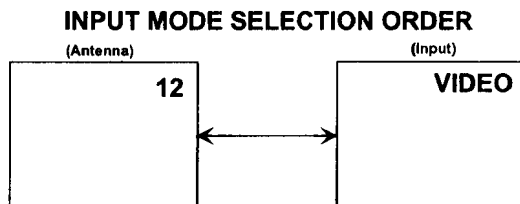


CONNECTING EXTERNAL VIDEO SOURCES

The exact arrangement you use to connect the Video Cassette Recorder, Video Disc Player and Video Camera to your TV set is dependent on the model and features of each component. Check the Owner's Manual of each component for the location of its video and audio inputs and outputs. The following connection diagrams are offered as suggestions. However, you may need to modify them to accommodate your particular assortment of components and features. For best performance, video and audio cables should be made from coaxial shielded wire.

Before Operating External Video Source

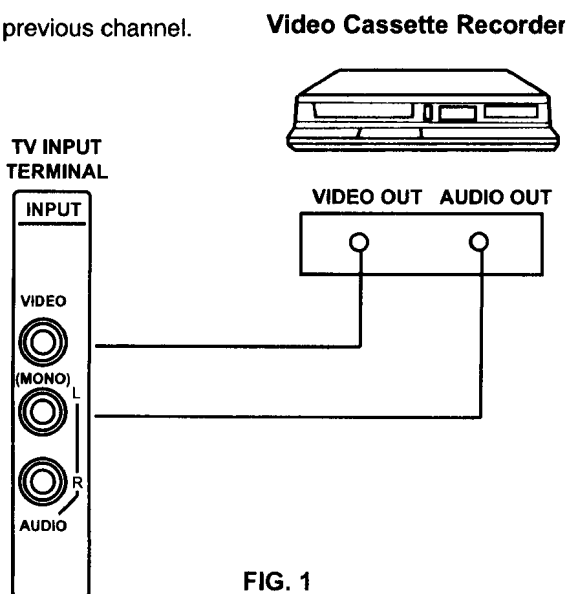
The input mode is changed every time the AVX button is pressed as shown below. Connect External source to the INPUT terminal, then press the AVX button as necessary to view the input source.



NOTE: When TV is set to "VIDEO" and a video signal is not received from VIDEO INPUT JACK on the jack panel of the TV (i.e., VCR/Video Disc Player, etc. is not connected or the video device is OFF), the screen will be grey-blue.

CONNECTING MONAURAL AUDIO VCR OR VIDEO DISC PLAYER

1. Connect the cable from the VIDEO OUT of the VCR or the Video Disc Player to the INPUT (VIDEO) jack on the TV set. (Fig. 1)
2. Connect the cable from the AUDIO OUT of the VCR or Video Disc Player to the INPUT (MONO)/L(AUDIO) jack. (Fig. 1)
3. Press the AVX button to view the program from the VCR or Video Disc Player. The mode "VIDEO" disappears automatically after approximately 8 seconds.
4. Press the AVX button to return to the previous channel.
5. See Below.



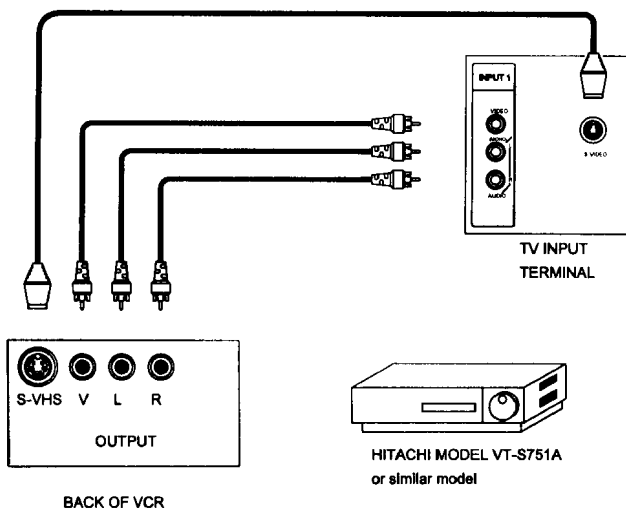
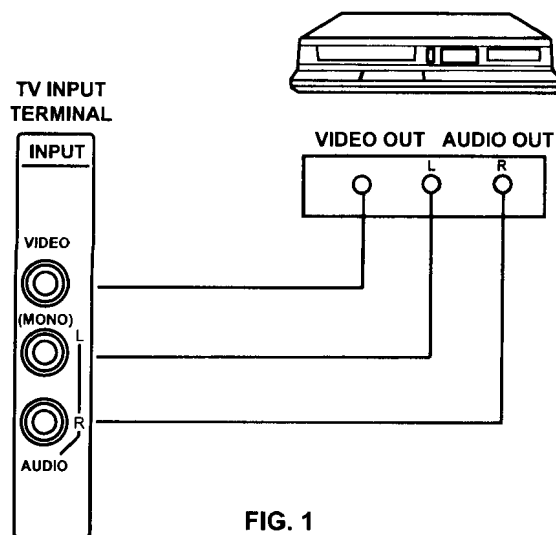
CONNECTING EXTERNAL VIDEO SOURCES



CONNECTING STEREO VCR OR STEREO VIDEO DISC PLAYER

1. Connect the cable from the VIDEO OUT of the VCR or the Video Disc Player to the "INPUT (VIDEO)" jack on the TV set. (Fig. 1)
2. Connect the cable from the AUDIO OUT "R" of the VCR or the Video Disc Player to the "INPUT(AUDIO/R)" jack. (Fig. 1)
3. Connect the cable from the AUDIO OUT "L" of the VCR or the Video Disc Player to the "INPUT(AUDIO/L)" jack. (Fig. 1)
4. Press the AVX button to view the program from the VCR or Video Disc Player. The mode "VIDEO" disappears automatically after approximately 8 seconds.
5. Press the AVX button to return to the previous channel.

Video Cassette Recorder



NOTE: Completely insert the connection cord plugs when connecting to REAR panel jacks. If you do not the picture that is played back may be abnormal.

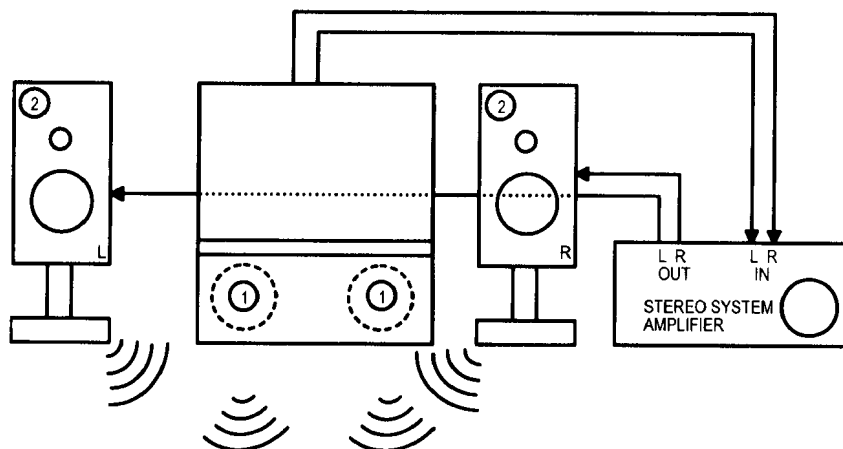
If you have an S-VHS VCR, use the S INPUT cable in place of the standard video cable.



AUDIO SYSTEM SET-UP

Match the numbers below to the diagram for speaker placement and refer to the table for the different surround sound requirements. (See page 51 for SURROUND functions.)

- ① The television's internal speakers.
- ② These speakers are connected to a separate audio amplifier. Use the "Audio to Hi-Fi" output on the TV.



SURROUND FEATURE	REQUIRED CONNECTION	OPTIONAL CONNECTION	EFFECT
OFF	①	②	Receive Mono and Stereo Sound.
SIMULATE	①	②	At Mono Input, sound is changed more loudly.
MUSIC	① ②	----	At stereo Input, sound of music is changed more loudly, Surround Channel added to left and right Audio Amplifier speakers.
MOVIE	① ②	----	Movie Theater Reproduction, Surround Channel added to left and right audio amplifier speakers.

THE REMOTE CONTROL (CLU-415UI)

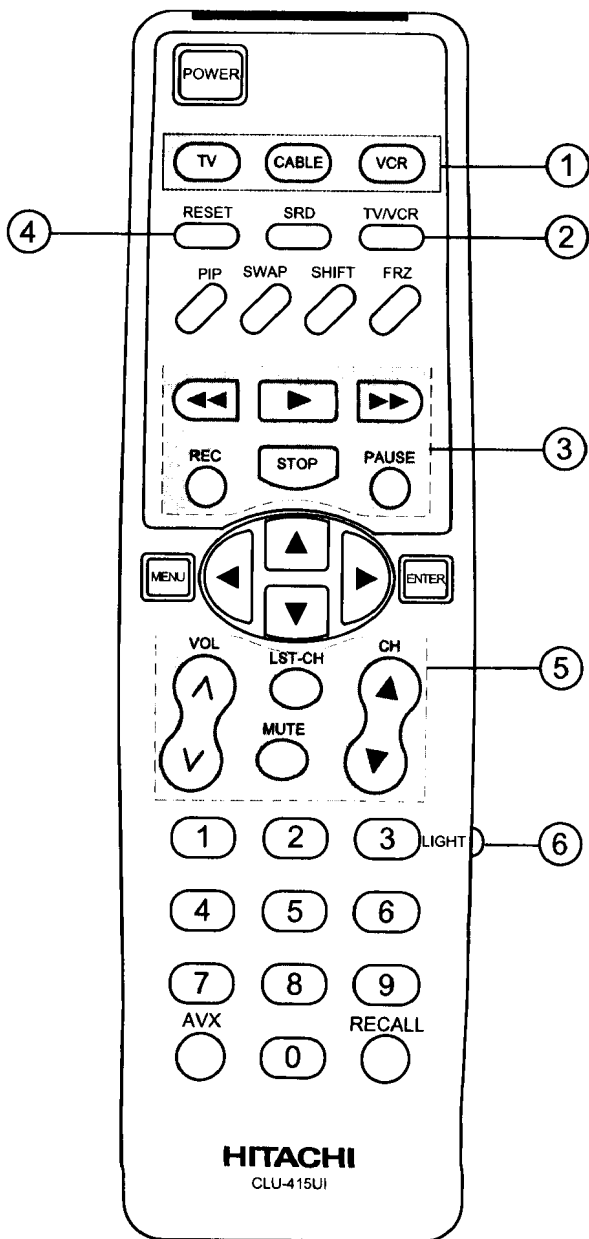


In addition to controlling all the functions on your HITACHI Color TV, the new remote is designed to operate different types of VCR's and CATV (Cable TV) converters with one touch. Basic operation keys are grouped together in one area.

To operate your TV, point the remote at the remote sensor of the TV and press the TV button on the remote. The remote will now control your TV.

To operate your VCR, point the remote at the remote sensor of the VCR and press the VCR button. The remote will now control your VCR.

To operate your Cable Box, point the remote at the remote sensor of the Cable Box and press the CABLE button on the remote. The remote will now control your cable box.



① These buttons allow the remote to control your TV, VCR, or Cable Box depending on which mode is chosen, as explained above.

② **TV/VCR BUTTON**
When the remote is in the TV or VCR mode, this is the TV/VCR button. When the remote is in the CABLE mode, this is the A/B button.

③ **PRECODED VCR BUTTONS**
These buttons always transmit the chosen precoded VCR codes.

④ **RESET BUTTON**
Press RESET to return video and audio to factory settings.

⑤, ⑥ **LIGHT BUTTON**
When you are in a darkroom, press this button on the side of the remote to light up the buttons shown in ⑤. The light will stay on for about 8 seconds if the light button is not pressed again. These buttons will not appear to light if the room is too bright.



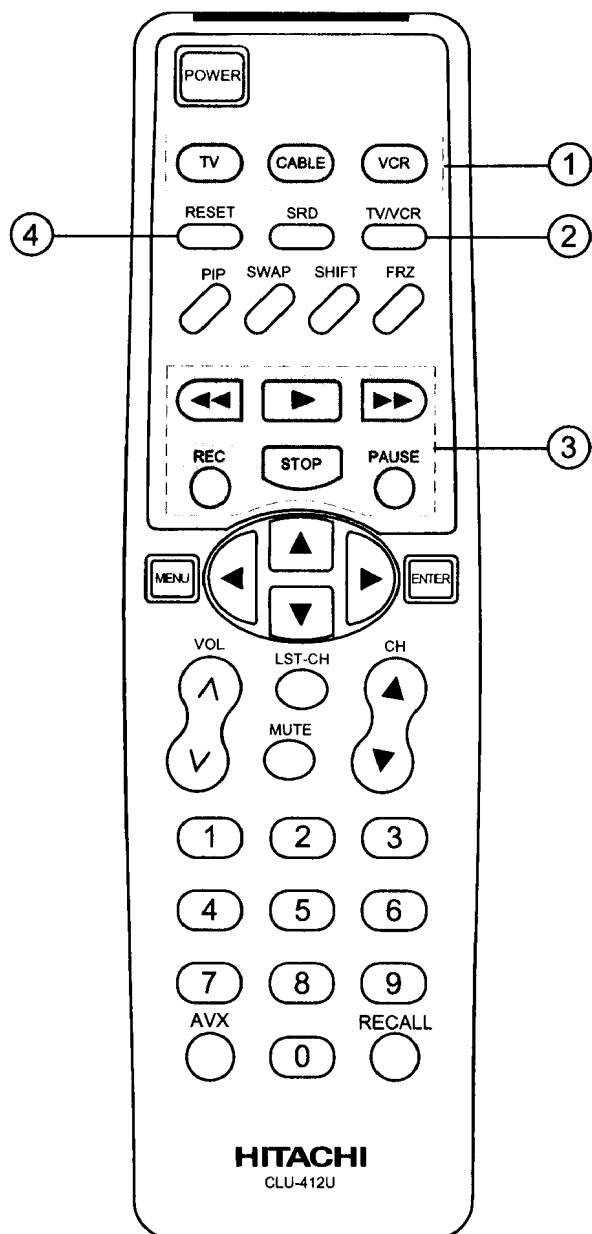
THE REMOTE CONTROL (CLU-412U)

In addition to controlling all the functions on your HITACHI Color TV, the new remote is designed to operate different types of VCR's and CATV (Cable TV) converters with one touch. Basic operation keys are grouped together in one area.

To operate your TV, point the remote at the remote sensor of the TV and press the TV button on the remote. The remote will now control your TV.

To operate your VCR, point the remote at the remote sensor of the VCR and press the VCR button. The remote will now control your VCR.

To operate your Cable Box, point the remote at the remote sensor of the Cable Box and press the CABLE button on the remote. The remote will now control your cable box.



① These buttons allow the remote to control your TV, VCR, or Cable Box depending on which mode is chosen, as explained above.

② **TV/VCR BUTTON**
When the remote is in the TV or VCR mode, this is the TV/VCR button. When the remote is in the CABLE mode, this is the A/B button.

③ **PRECODED VCR BUTTONS**
These buttons always transmit the chosen precoded VCR codes.

④ **RESET BUTTON**
Press RESET to return video and audio to factory settings.

THE REMOTE CONTROL (CLU-411U)

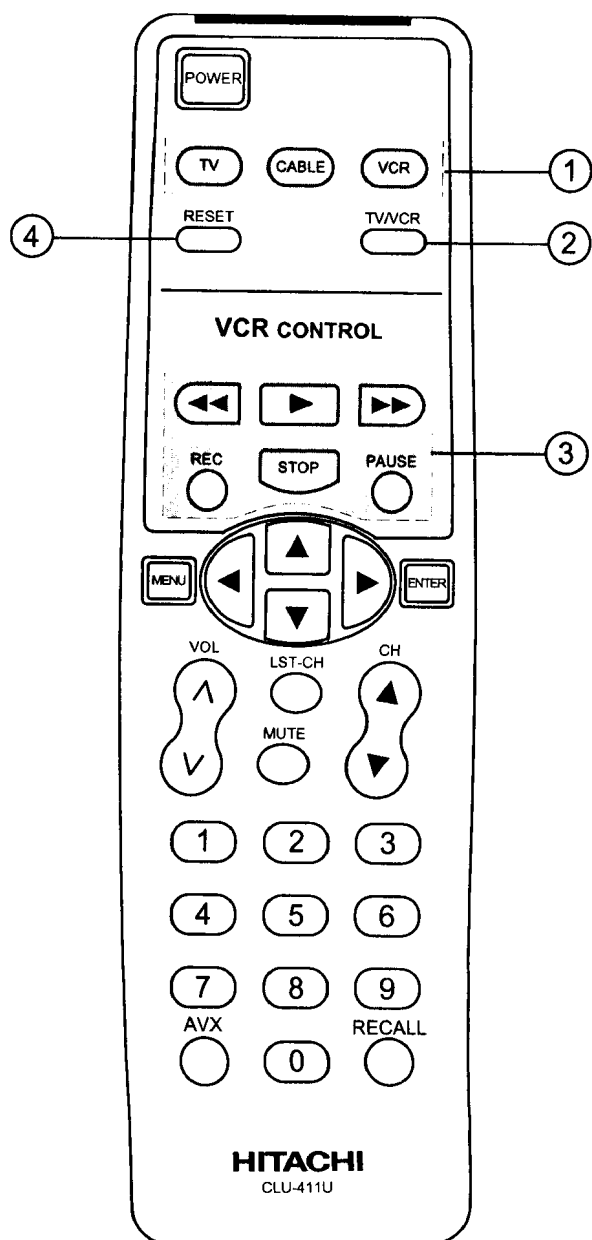


In addition to controlling all the functions on your HITACHI Color TV, the new remote is designed to operate different types of VCR's and CATV (Cable TV) converters with one touch. Basic operation keys are grouped together in one area.

To operate your TV, point the remote at the remote sensor of the TV and press the TV button on the remote. The remote will now control your TV.

To operate your VCR, point the remote at the remote sensor of the VCR and press the VCR button. The remote will now control your VCR.

To operate your Cable Box, point the remote at the remote sensor of the Cable Box and press the CABLE button on the remote. The remote will now control your cable box.



① These buttons allow the remote to control your TV, VCR, or Cable Box depending on which mode is chosen, as explained above.

② **TV/VCR BUTTON**
When the remote is in the TV or VCR mode, this is the TV/VCR button. When the remote is in the CABLE mode, this is the A/B button.

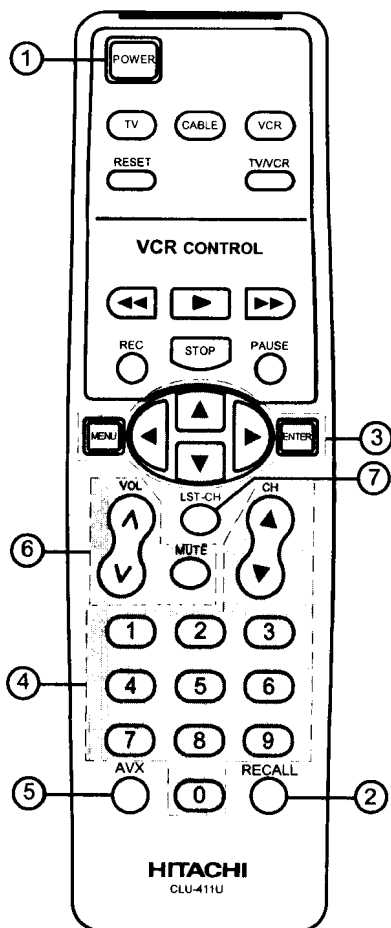
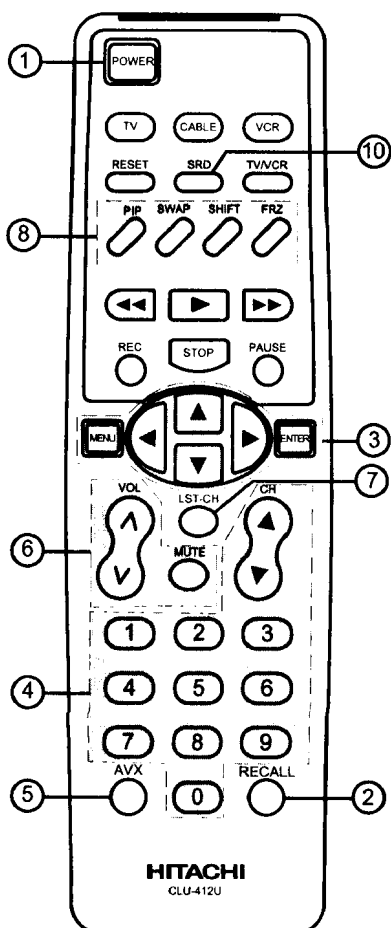
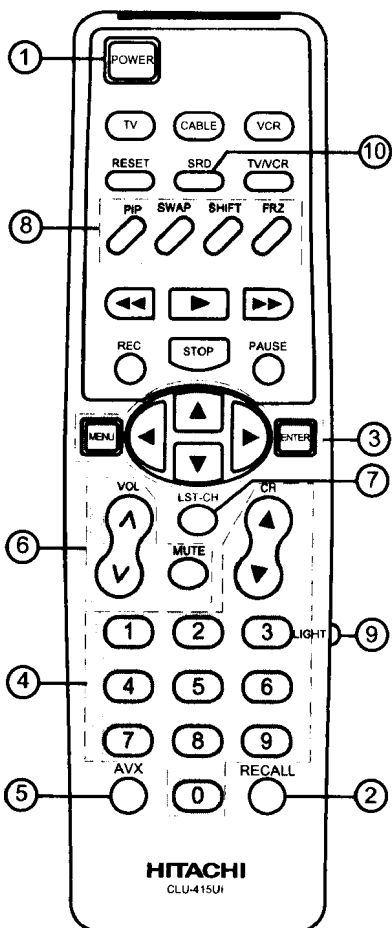
③ **PRECODED VCR BUTTONS**
These buttons always transmit the chosen precoded VCR codes.

④ **RESET BUTTON**
Press RESET to return video and audio to factory settings.



HOW TO USE THE REMOTE TO CONTROL YOUR TV

A detailed explanation of the circled numbers is on the following pages. (example: ①).



HOW TO USE THE REMOTE TO CONTROL YOUR TV



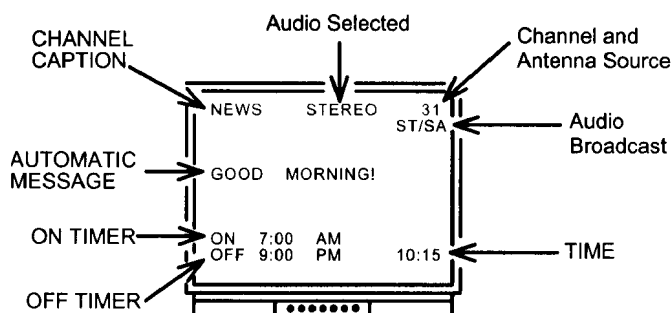
① **POWER Button**

Press this button to turn the TV set on or off. If an automatic message is set, it will be displayed when the TV is first turned on. (See page 47.)

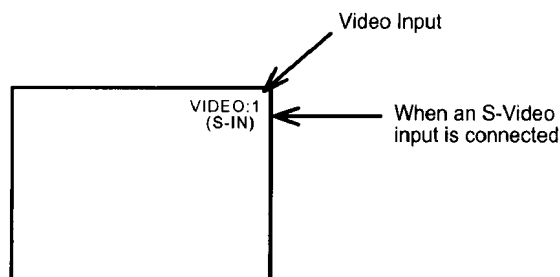
② **RECALL Button**

When you want to check the channel being received, or if it has a stereo (ST) or second audio program (SAP), press the RECALL button.

You can also check the time, and if the ON TIME or OFF TIME has been set. (See page 46.)



If a video input is used:



You can also use the RECALL button to quickly clear many of the other On-Screen Displays.



HOW TO USE THE REMOTE TO CONTROL YOUR TV

③ MENU, ENTER, CURSOR Buttons

All the on-screen display features can be set or adjusted by using these buttons.

The "MENU" button will start or exit the on-screen display.

The "CURSOR" buttons will highlight functions or adjust different features.

The "ENTER" button will set features to your preference.

④ CHANNEL SELECTOR Buttons

Enter two or three numbers to select channels. Enter a "0" first for channels 1 to 9.

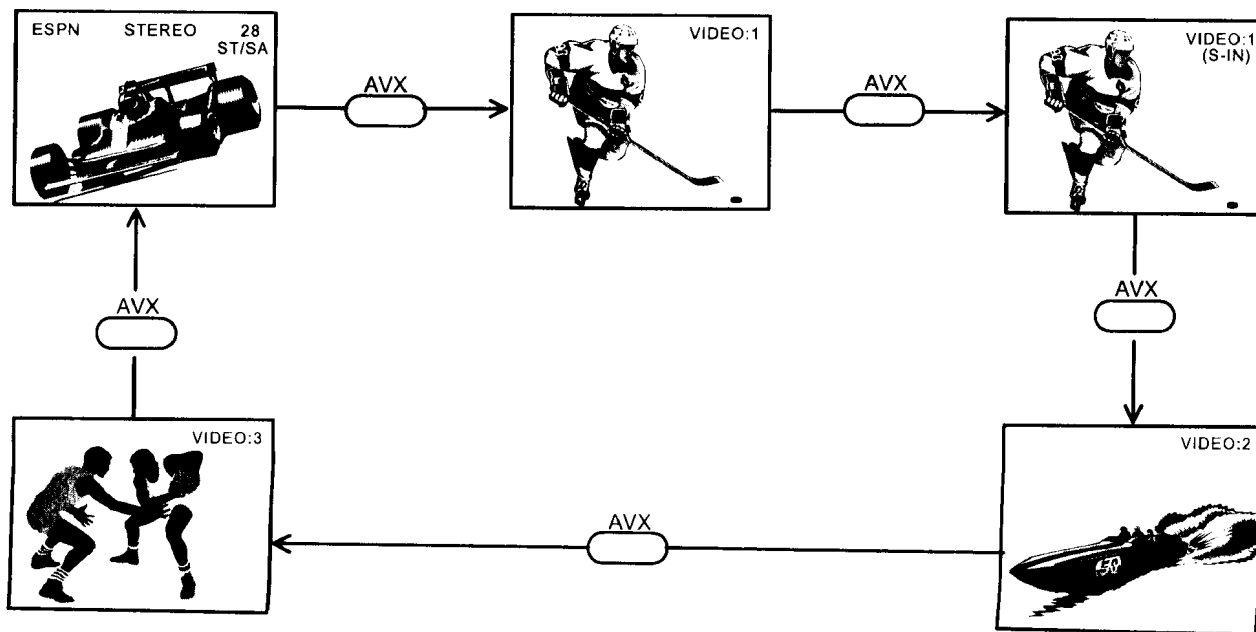
For channels over 100, press 1 and wait for 2 seconds before pressing the last two digits of the channel.

Channel selection may also be performed by pressing channel (▲) or down (▼).

NOTE: The TV may not receive some channels if you are not in the correct AIR/CABLE mode. See page 39.

⑤ AVX Button

The AVX (Auxiliary Video) button will select between the antenna signal and the three sets of video input jacks each time the button is pressed. If the Picture-in-Picture (PiP) is on, the AVX will select between the three sets of video input jacks. (See page 30.)



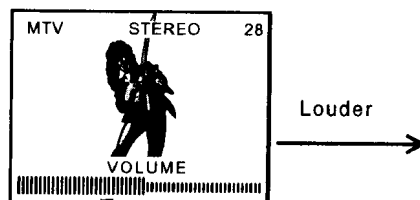
HOW TO USE THE REMOTE TO CONTROL YOUR TV



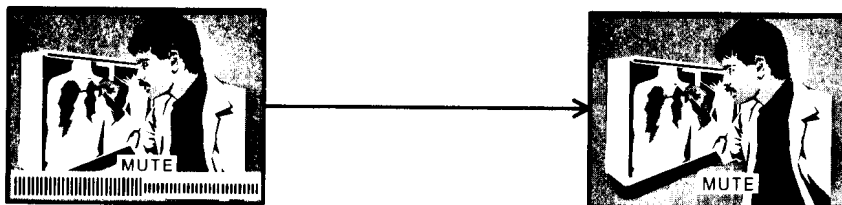
⑥ VOLUME, MUTE Buttons

Press the "VOLUME" up (▲) or down (▼) button until you obtain the desired sound level.

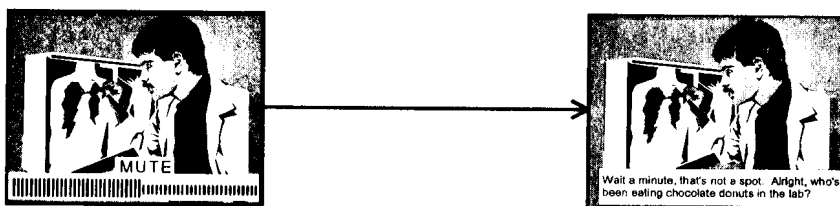
To turn the sound off instantly to answer the telephone, etc., press the "MUTE" button. Press the "MUTE" button again or press the "VOLUME" up (▲) button to restore the sound.



The word "MUTE" will remain displayed if the CLOSED CAPTION feature is turned off.

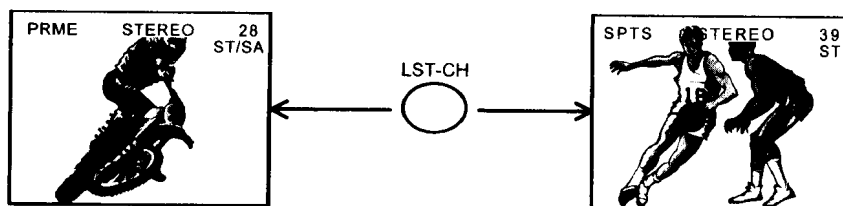


The word "MUTE" will not be displayed if the CLOSED CAPTION feature is on.



⑦ LAST CHANNEL (LST-CH) Button

Use this button to select between the last two channels viewed. (Good for watching two sporting events, etc.)



⑧ PICTURE-IN-PICTURE

See separate section on page 30 for a description.

⑨ LIGHT Button

When you are in a dark room, press this button to light up the volume and channel buttons. The light will stay on for about 8 seconds if no buttons are pressed. The buttons will not appear to light if the room is too bright.

⑩ SRD Button

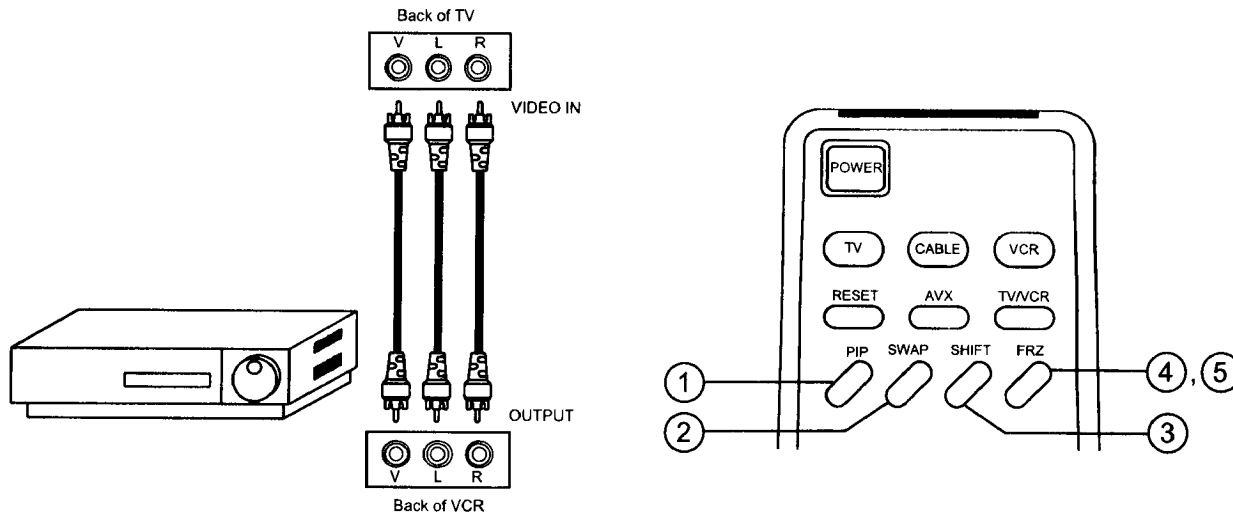
Press the "SRD" button to directly access the surround function. (See page 51.)

NOTE: Model 31CX5B does not have "SRD" button. Use the MENU button to access the surround feature.



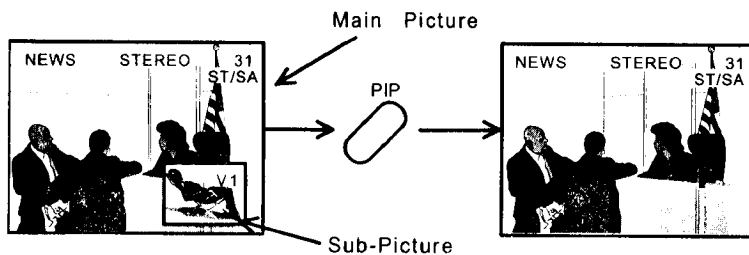
PICTURE-IN-PICTURE (PIP)

The Picture-in-Picture feature is convenient when you want to watch more than one program at the same time. You can watch a TV program while viewing a VCR program (TV or tape) on any of the video inputs.



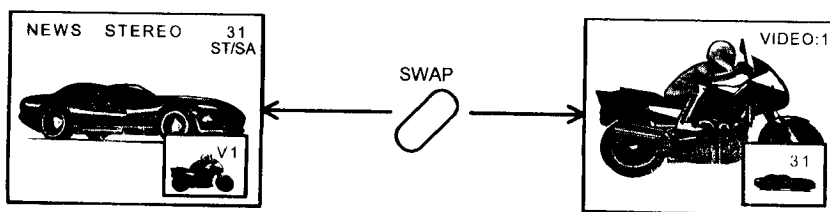
① P-IN-P BUTTON

Press the "P IN P" button and sub-picture appears in one corner of the screen. Press the button a second time to remove the sub-picture from the screen. The TV channel will always be either the main picture or the sub-picture.



② SWAP BUTTON

If you wish to switch what is being shown on the main picture to the sub-picture, press the "SWAP" button.



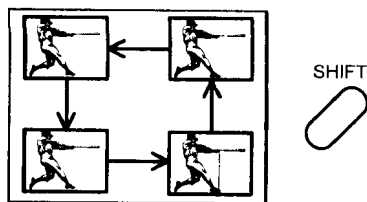
NOTE: Model 31CX5B does not have P-IN-P Function.

PICTURE-IN-PICTURE (PIP)



③ SHIFT BUTTON

To move the sub-picture to another corner, press the "SHIFT" button. The sub-picture moves one step counterclockwise every time the "SHIFT" button is pressed.

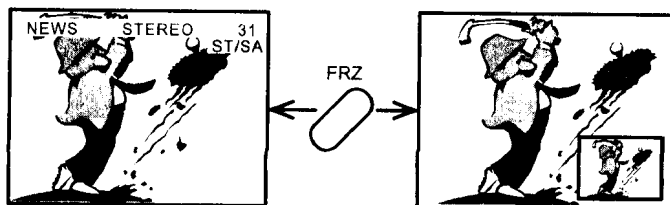


④ FREEZE (FRZ) BUTTON

If you wish to freeze the sub-picture, press the "FRZ" button. This is convenient when trying to write down the address for a mail order company, recording statistics for a sporting event, etc. To return to motion, press the button again.

⑤ FREEZE (FRZ) BUTTON WITHOUT A SUB-PICTURE (QUICK FREEZE)

Press this button without a sub-picture to freeze the picture you are currently viewing. Press this button again to return to normal viewing. The SWAP button will not work with this FREEZE function.



CAUTION: A pattern burn may develop if the sub-picture is left in the same corner permanently. If the PIP feature is used frequently, occasionally shift the sub-picture to a different corner.

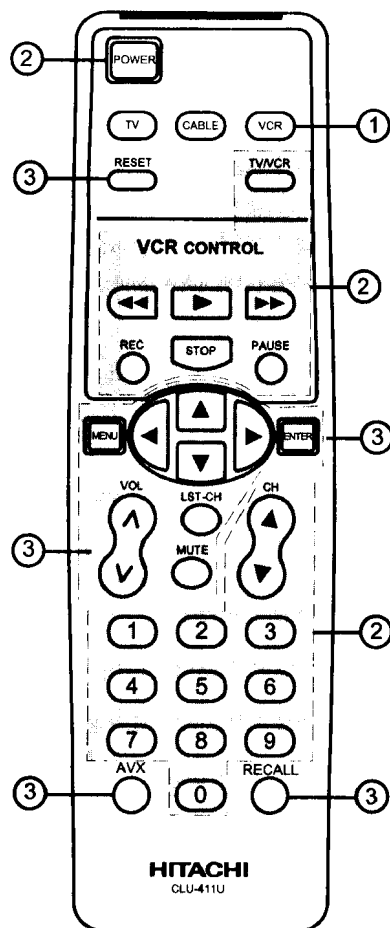
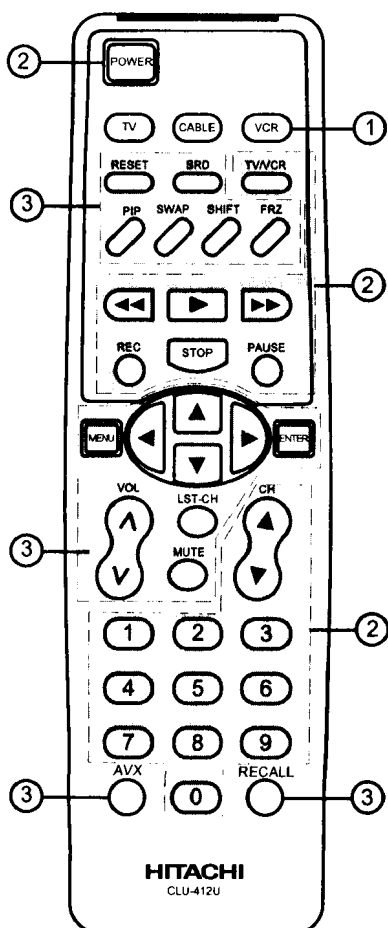
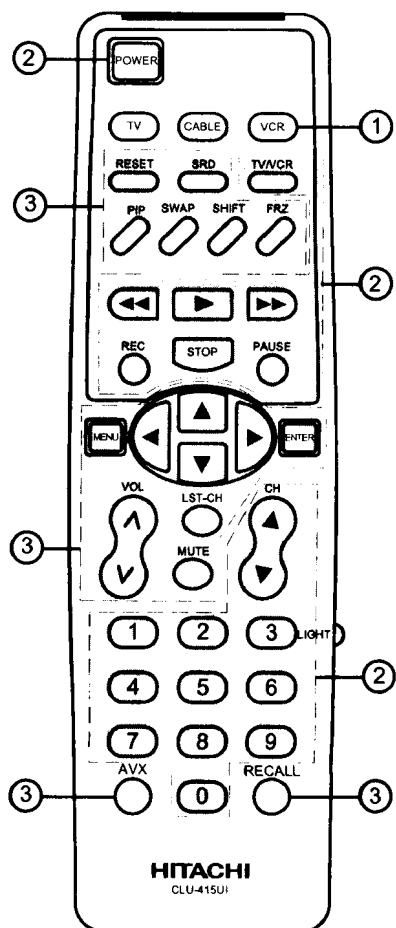
NOTE:

1. Only sound from the main picture can be heard.
2. P-IN-P will not work with a CHILD LOCK channel as the main picture but it will be displayed as a Sub-Picture.
3. When the "P-in-P" button is pressed, the sub-picture will appear in the same position as previously set.



USING THE REMOTE TO CONTROL VCR FUNCTIONS

A detailed explanation of the circled numbers is on the following pages. (example: ①).



USING THE REMOTE TO CONTROL VCR FUNCTIONS



Operating the pre-coded function for your VCR

This remote is designed to operate different types of VCR's. You must first program the remote to match the remote system in your VCR. (Refer to page 36.)

1. Turn on your VCR.
2. Aim the remote control at the front of your VCR.
3. Press the VCR button to switch to the VCR pre-coded mode.
4. While holding down the VCR button, enter the 2 digit preset code that matches your VCR as shown on page 36. The remote will turn off your VCR when the correct 2 digit preset code is entered. When this occurs, the remote control is programmed for your VCR. If the VCR does not turn off after 5 seconds, try a different 2 digit preset code.
5. The remote will now control your VCR.

NOTES:

1. If your VCR cannot be operated after performing the above procedures, this means that your VCR's codes have not been precoded into the remote.
2. In the unlikely event that your VCR cannot be operated after performing the above procedures, consult your VCR operating guide.
3. The remote control will remember the codes you have programmed in until the batteries are removed from the remote control. After replacing the batteries repeat the entire programming procedure stated above.
4. If your VCR does not have a power function, the remote will issue the CHANNEL UP function.

① VCR BUTTON

This allows the remote to control your VCR by setting it to VCR mode.

② PRECODED VCR BUTTONS

These buttons transmit the chosen precoded VCR codes. For some VCR's, you must press the RECORD button twice to record a program.

③ EXCLUSIVE TV BUTTONS

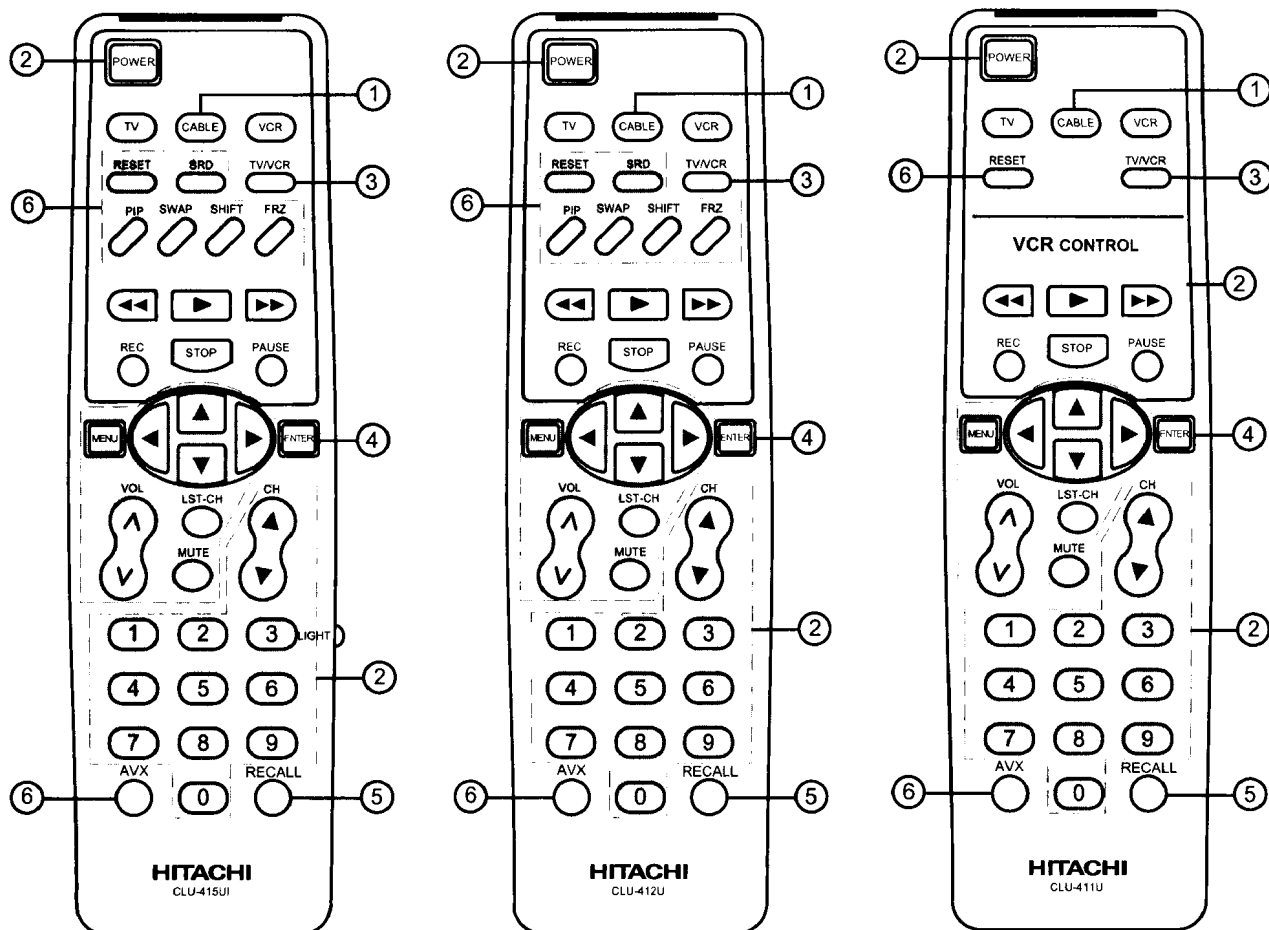
These buttons are for operating the TV.

NOTE: Refer to the instruction manual of the VCR for operation of the buttons exclusively for the VCR.



USING THE REMOTE TO CONTROL CABLE BOX FUNCTIONS

A detailed explanation of the circled numbers is on the following pages. (example: ①).





USING THE REMOTE TO CONTROL CABLE BOX FUNCTIONS

Operating the pre-coded function for your cable box

This remote is designed to operate different types of Cable Boxes. You must first program the remote to match the remote system in your cable box. (Refer to page 36.)

1. Turn on your cable box.
2. Aim the remote control at the front of your cable box.
3. Press the cable box button to switch to the cable box pre-coded mode.
4. While holding down the **CABLE** button, enter the 2 digit preset code that matches your cable box as shown on page 36. The remote will turn off your cable box when the correct 2 digit preset code is entered. When this occurs, the remote control is programmed for your cable box. If the cable box does not turn off after 5 seconds, try a different 2 digit preset code.
5. The remote will now control your cable box.

NOTES:

1. If your cable box cannot be operated after performing the above procedures, this means that your cable box codes have not been precoded into the remote.
2. In the unlikely event that your cable box cannot be operated after performing the above procedures, consult your cable box operating guide.
3. The remote control will remember the codes you have programmed in until the batteries are removed from the remote control. After replacing the batteries repeat the entire programming procedure stated above.
4. If your cable box does not have a power function, the remote will issue the **CHANNEL UP** function.

① **CABLE BUTTON**

This button allows the remote to control your cable box by setting it to **CABLE** mode.

② **PRECODED CABLE BOX BUTTONS**

These buttons transmit the chosen precoded CATV codes.

③ **TV/VCR BUTTON**

When the remote is in **CABLE** mode, this is the **A/B** button.

④ **ENTER BUTTON**

If your cable box does not have an enter function, this button will send the TV enter code.

⑤ **RECALL BUTTON**

If your cable box does not have a last channel function, this button will send the TV channel recall code.

⑥ **EXCLUSIVE TV BUTTONS**

These buttons are for operating the TV.



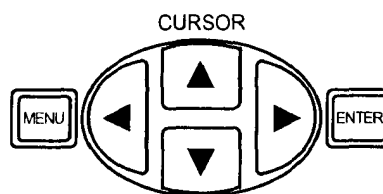
VCR AND CABLE BOX CODES

VCR BRAND	CODE	VCR BRAND	CODE	CABLE BRAND	CODE
Adventura	00	Motorola	09,20	ABC	03,05,09,11,12,14
Aiko	50	MTC	00,48	Archer	40
Aiwa	00	Multitech	00,27	Belcor	31
Akai	14,23	NEC	11,13,14,26	Cable Star	31
American High	09	Nikko	10	Century	40
Asha	48	Noblex	48	Citizen	40
Audiovox	10	Olympus	09	Contec	15
Beaumark	48	Optimus	20	Garrard	40
Bell & Howell	30	Panasonic	09,35,46	GC Electronics	31
Brandt	38	Penney	09,10,11,13, 15,48	Gemini	13
Broksonic	33,37,43	Pentax	15,24	General Instrument	09
Canon	09	Philco	09	Hamlin	08,16,49,50
Carver	28	Philips	09,28	Hitachi	09
CCE	27,50	Pilot	10	Hytex	05
Citizen	50	Pioneer	26	Jasco	40
Colt	27	Protec	27	Jerrold	03,09,10,12,13
Craig	19,27,48	Pulsar	12	Memorex	00
Curtis Mathes	09	Quartz	18	Movie Time	42
Cybernex	48	Quasar	09	NSC	42
Daewoo	17,50	Radio Shack	00,10	Oak	05,15,47
Dynatech	00	RCA	15,22,24	Panasonic	17
Emerex	06	Realistic	00,09,10,18, 19,20,30,48	Paragon	00
Emerson	00,01,10,16, 23, 33,37,40,43	Ricoh	08	Philips	40
Fisher	19,30	Runco	12	Pioneer	39
Fuji	07,09	Samsung	17,48	Pulsar	00
Funai	00	Sanky	12,20	RCA	17
Garrard	00	Sansui	14,26	Regal	16,49,50
GE	09,22,24	Sanyo	18,19,30,48	Rembrant	09
Goldstar	10,11	Scott	16,17,33,37, 42,43	Runco	00
Gradiente	00	Sears	09,10,15,18, 19,31	Samsung	39
Harley Davidson	00	Sharp	20	Scientific Atlanta	04,06,14,52
Harman/ Kardon	11	Shintom	27	Signal	13
Harwood	27	Shogun	48	Signature	09
HI-Q	19	Singer	27	Sprucer	17
Hitachi	15,24	Sony	06,07,08,09	Standard Components	41
Jensen	14	STS	15	Starcom	03,13
JVC	14,26	Sylvania	00,09,16,28	Stargate	13
Kenwood	11,14,18,26	Symphonic	00	Starquest	13
KLH	27	Tatung	14	Tocom	10,11,33
Kodak	09	Teac	00,14		
Lloyd	00	Technics	09,35		
Logik	27	Teknika	00,09,10		
LXI	10	TMK	40,48		
Magnavox	09,12,28	Toshiba	16,17,44		
Magnin	48	Totevision	10,48		
Marantz	09,11,28	Unitech	48		
Marta	10	Vector	17		
Matsushita	09	Vector Research	11,13		
MEI	09	Video Concepts	13,17,23		
Memorex	00, 09,10,12,18, 19,20,30,48	Videosonic	48		
MGA	16,23	Wards	00,09,15,19, 20,27,48		
MGN Technology	48	XR-1000	27		
Minolta	15	XR1000	00,09		
Mitsubishi	16,23,26,45	Yamaha	11,14		
		Zenith	07,08,12		

EASY GRAPHIC GUIDE



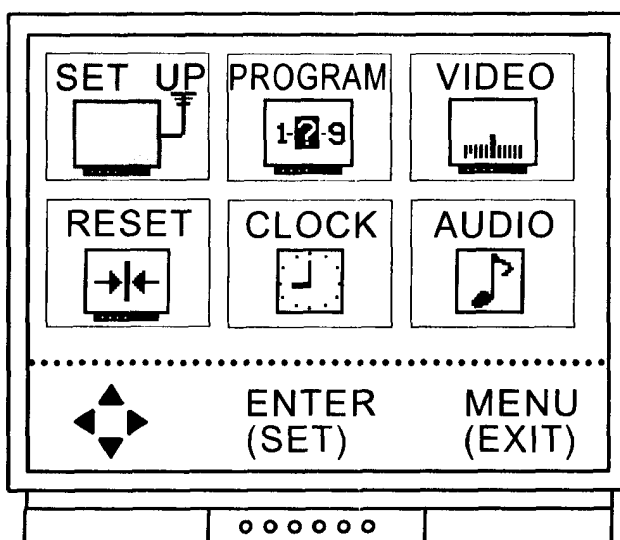
- ① Press MENU on the remote control to display the different features on your HITACHI TV. The feature to be selected will be highlighted in a magenta (purple) color.
- ② Press the CURSOR buttons to highlight a different feature.
- ③ Press ENTER on the remote control to select a feature.



This part of the screen shows what selections are available.

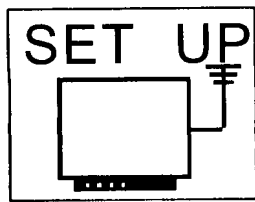


This part of the screen shows which remote control buttons to use.





EASY GRAPHIC GUIDE



**AIR/CABLE
AIR**

Select antenna
or cable TV.

**AUTO
PROGRAM**

First time setup
for channel buttons.

**CHANNEL
MEMORY**

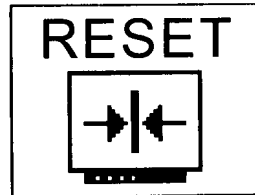
Channel buttons,
add or erase.

**CLOSED
CAPTION**

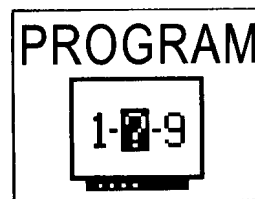
Feature to display
dialogue/text.

MENU LANGUAGE

Choose English, French, or Spanish Language.



Return video and audio adjustments to factory settings.



**CHANNEL
CAPTION**

Label channels
PAY1, ABC, etc.

**CHILD
LOCK**

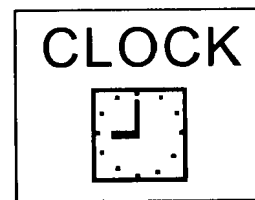
Block channel
picture & sound.

**PROGRAM
LIST**

Check channel
name, scan,
childlock.

**VOLUME
CORRECTION**

Lower volume on
selected channels.



**CLOCK
SET**

Set before using
timer features.

**ON/OFF
TIMER**

Turn TV on or off
one time or daily.

**AUTOMATIC
MESSAGE-1**

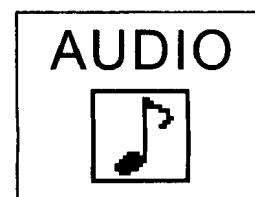
Set for one
time or daily.

**AUTOMATIC
MESSAGE-2**

Set for one
time or daily.



Adjust Contrast, Color, Tint, Brightness, Sharpness and White Control.



**PREFERENCE
ADJUST**

Adjust balance,
bass, and treble.

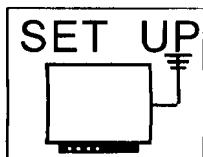
**PREFERENCE
SETTING**

Improve sound
performance.

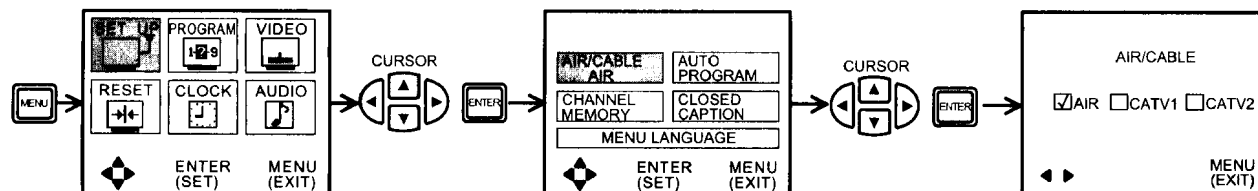
SURROUND

Special sound effects.

SET UP



Select **SET UP** when setting your TV up for the first time. Use the **CURSOR UP/DOWN** buttons on the remote to highlight the function desired.

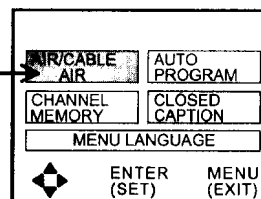


AIR/CABLE AIR

Select **AIR** if you are using an indoor or outdoor antenna. Select **CATV** if you have cable TV.

Press the **CURSOR** buttons to highlight the correct **AIR/CABLE** mode and press **MENU** to exit. Your choice will be shown on the display.

Your selection is shown here



RECEPTION BAND		
AIR	CATV 1 or CATV 2	
	CATV CHANNEL	Indicated on the screen
VHF 2 ~ 13ch UHF 14 ~ 69ch	VHF 2 ~ 13	2 ~ 13
	Mid band A ~ I A-5 ~ A-1	14 ~ 22 95 ~ 99
	Super band J ~ W	23 ~ 36
	Hyper band W + 1 ~ W + 28	37 ~ 64
	Ultra band W + 29 ~ W + 84	65 ~ 125

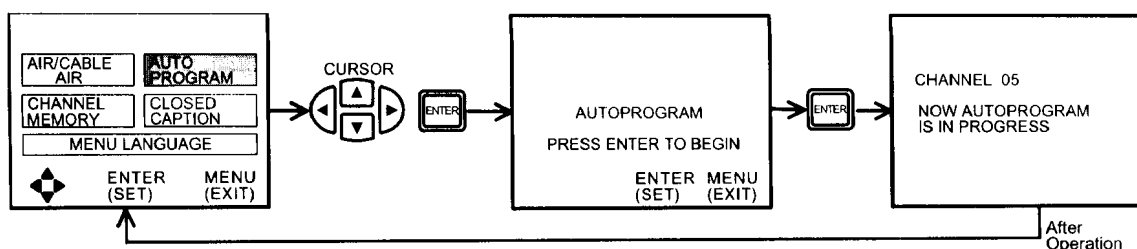
Reception channels for each mode are shown at the left.

Refer to your cable or TV guide for channel identification standards.

If certain CATV channels are poor or not possible in the CATV1 mode, set **AIR/CABLE** to **CATV2**.

AUTO PROGRAM

This feature will automatically store active TV channels in **CHANNEL MEMORY**. This will allow you to skip over unused channels when using the **CHANNEL UP** (▲) or **DOWN** (▼) buttons.



If the **MENU** button is pressed while the auto programming function is engaged, programming will stop.

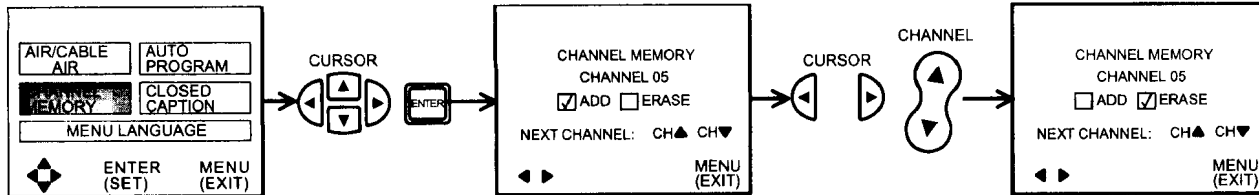
See **CHANNEL MEMORY** to add or erase additional channels.



SET UP

CHANNEL MEMORY

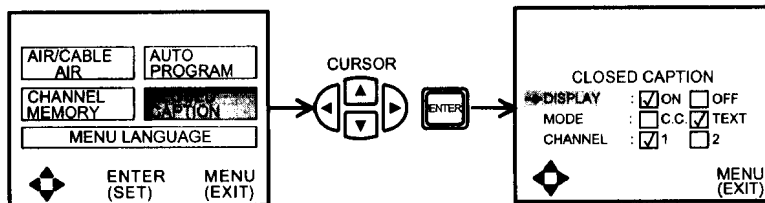
Use this function after AUTOPROGRAM to add or erase additional channels to the remote control CHANNEL ▲, ▼ buttons. Your choice will be highlighted in yellow.



Add or erase additional channels while still in CHANNEL MEMORY using the CHANNEL ▲, ▼ buttons or number buttons and then add or erase using the CURSOR ◀, ▶ buttons.

CLOSED CAPTION

Closed captions are the dialogue, narration, and/or sound effects of a television program or home video which are displayed on the TV screen. Your local TV program guide denotes these programs as **CC** or .



The selected function will be magenta. Your choice for the function will be blue.

DISPLAY: ON/OFF is to turn the **CC** display on or off.

MODE: C.C. (Closed Caption) is for the program you are viewing.

MODE: TEXT is for additional information such as news reports or a TV program guide. This information covers the entire screen and viewing the TV program is not possible. TEXT may not be available with every **CC** program.

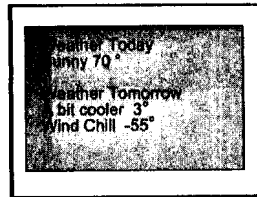
CHANNEL: 1 is used for the primary language (usually English).

CHANNEL: 2 is sometimes used for a second language (may vary by region).

Use the CURSOR ▲ or ▼ to highlight the function to change, press ENTER to change the function, and press MENU to exit.



C.C. Selected



Text Selected

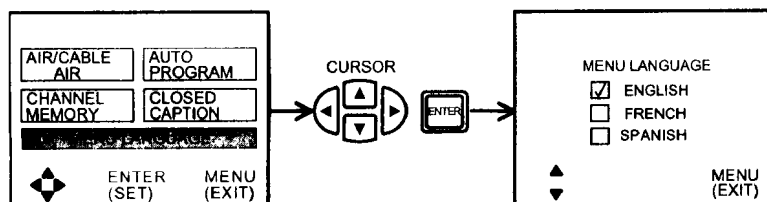
NOTE: The word MUTE will not be displayed if the DISPLAY in ON. If you do not have sound, make sure MUTE is not set.

SET UP



MENU LANGUAGE

This feature will allow you to select any one of 3 different languages for all on screen displays.

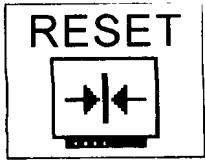


Use the cursor ▲, ▼ buttons to select the MENU LANGUAGE of your choice.

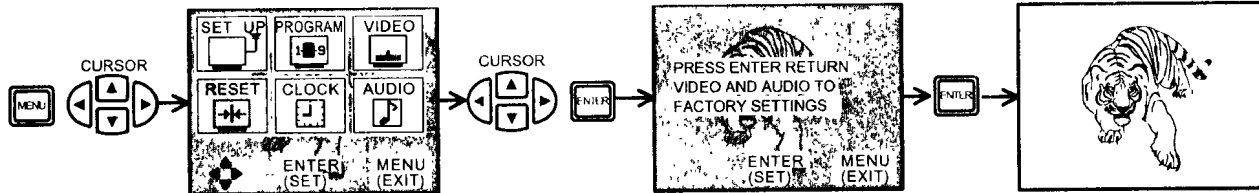
Press MENU to exit.



RESET



Use the reset to change your preferred video and audio adjustments to factory settings.



Factory Settings:

VIDEO

Contrast:
Color:
Tint:
Brightness:
Sharpness:
White Control: COOL

AUDIO

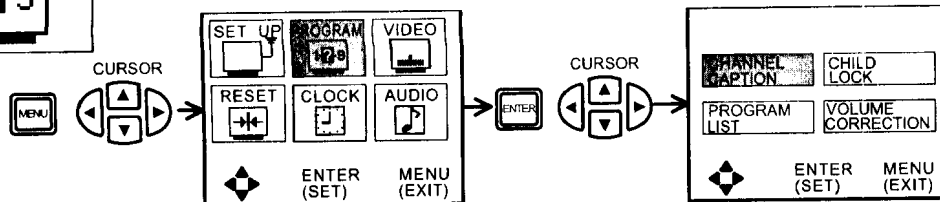
Balance:
Bass:
Treble:
MTS Mode: STEREO
Loudness: OFF
Internal Speakers: ON
Surround: OFF

NOTE: This RESET Selection will not change your preferred adjustments. To change back to your adjustments, see VIDEO (page 48) or Audio (page 49).



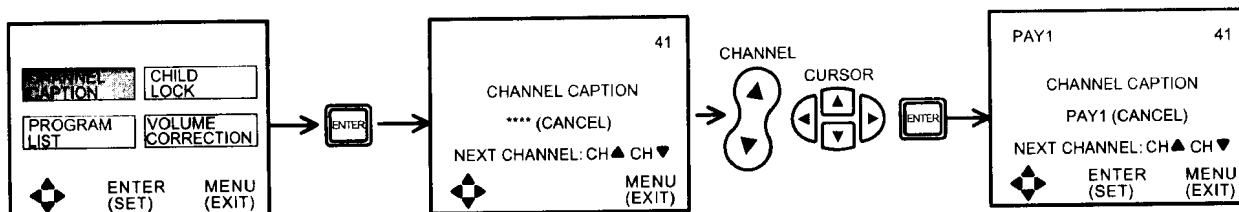
PROGRAM

This selection contains advanced features which will make TV viewing easier and more enjoyable.



CHANNEL CAPTION

Use this feature to give up to 30 channels a name.



Press the CURSOR ▲, ▼ to select letters.

Press the CURSOR ◀, ▶ to change position.

Press ENTER to set the CHANNEL CAPTION and it will appear in the top left corner of the screen.

Press CHANNEL ▲, ▼ or the number buttons to select additional channels for labeling.

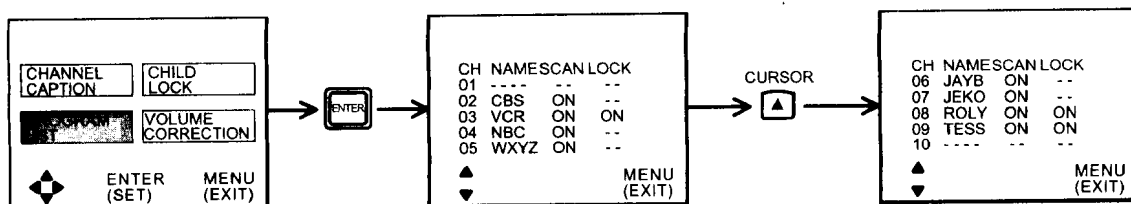
Press MENU to exit.

The (*) represents a blank space.

Select CANCEL to erase a CHANNEL CAPTION.

PROGRAM LIST

This function allows you to view which channels are labeled CHANNEL CAPTION (NAME), which have been added to CHANNEL MEMORY (SCAN), and are protected by CHILD LOCK (LOCK).

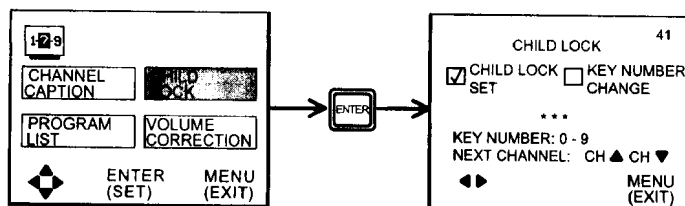


Press CURSOR ▲, ▼ to review more channels.

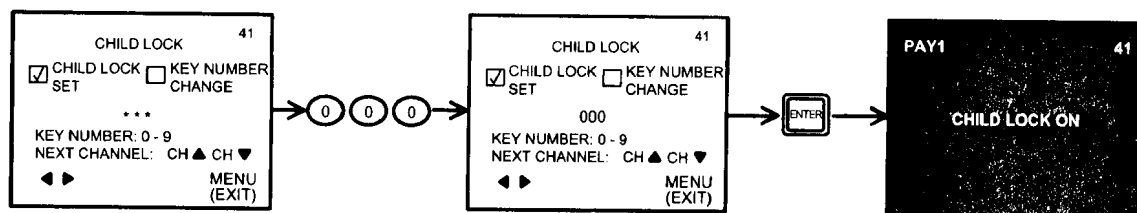
Press MENU to EXIT.

**CHILD
LOCK**

This function will block out the picture and sound of the selected channel.



The code to set or cancel CHILD LOCK is a three digit key number. The factory preset key number is 000.



The picture and sound will now be blocked out for this channel. Repeat the same steps to cancel the CHILD LOCK.

To change the key number, select key number change. Enter the old number (factory preset 000 for first time use), then enter a new three digit key number you prefer.

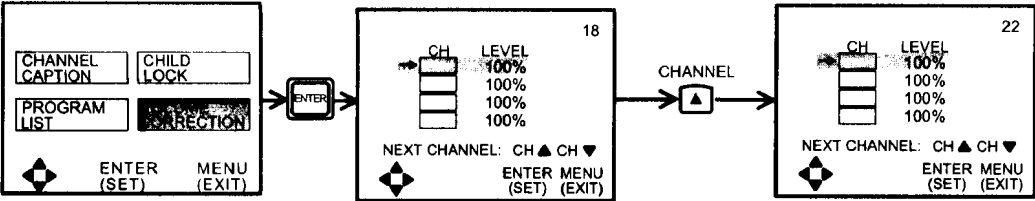
If you forget your key number, use the factory code 777 to erase your key number. This resets the key number back to the factory preset.

PROGRAM

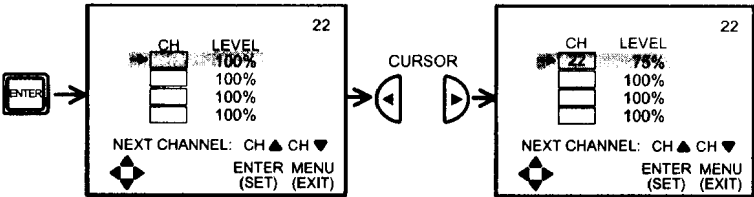


VOLUME CORRECTION

Use this function to reduce the volume level of up to four TV channels that sound loud compared to other TV channels.



Press the CURSOR ▲, ▼ to select one of the four volume corrections.
Use the CHANNEL ▲, ▼ or number buttons to select a channel.

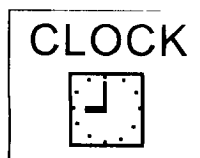


Press ENTER to set the channel.
Press CURSOR ◀, ▶ to adjust volume level.
Press MENU to exit.

- NOTE:**
 - VOLUME CORRECTION adjustment is for the channel displayed in the top right corner of the screen. To adjust a different channel, you must select the channel with the channel or number buttons and press ENTER.
 - If the channel has been corrected before, use the cursor ▲, ▼ to highlight that channel then use the cursor ◀, ▶ to change the level.
 - To erase a channel from the volume correction, select channel 00 and press ENTER.
 - The volume level will change from 50% to 100% in increments of 5%.



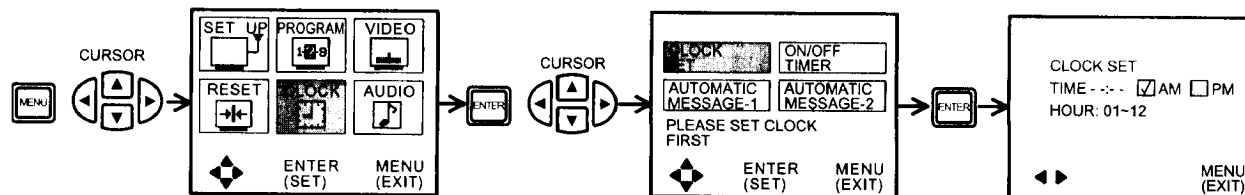
CLOCK



Use this feature for all time related functions.

CLOCK SET

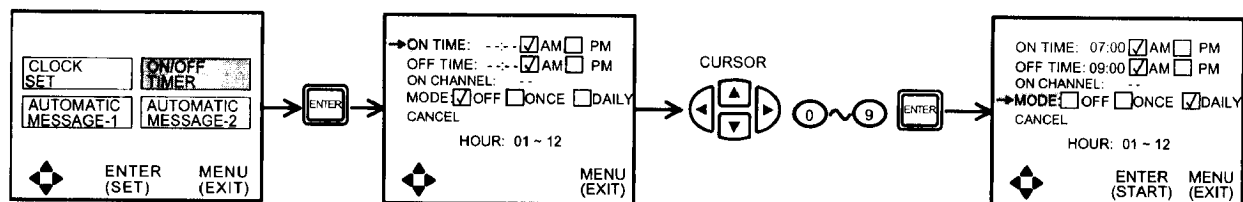
The time must be set before you can use the on/off timer or automatic message.



Use the NUMBER buttons and CURSOR ◀, ▶ to set the time.
 The AM or PM selected will be highlighted in blue.
 When you have finished setting the time, press ENTER to start.

ON/OFF TIMER

This function will automatically turn the TV on or off, one time only or everyday.



The selection to change will be in magenta.

Press the number buttons to select the time the TV will turn on or off. (AM: 1, PM: 2)

Press the CURSOR ◀, ▶ buttons for MODE: ONCE (one time only) or MODE: DAILY (TV will turn on/off at the same time every day).

Press CHANNEL ▲, ▼ or the NUMBER buttons to set the channel the TV will tune to when it automatically turns on.

Your choice for AM/PM and MODE will appear in blue.

Press ENTER to start.

Select CANCEL and press ENTER to erase times.

NOTE: You can set either on time only, off time only, or both. The mode will be the same for both.



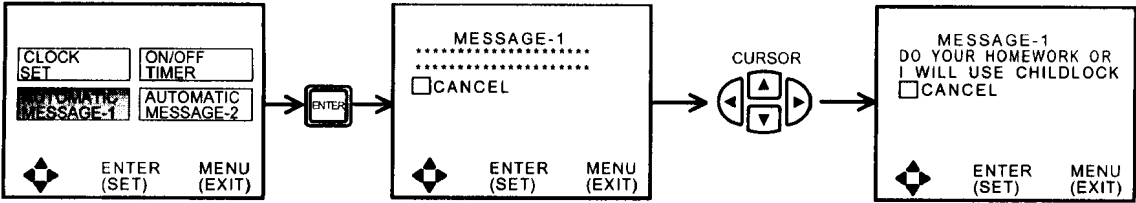
CAUTION: Do not use your TV as a deterrent when away from home by using both the ON and OFF TIMERS. For safety, the TV should be turned off when you are away from home.

CLOCK



AUTOMATIC MESSAGE

Use this function to set one or two personal messages once a day or one time only.



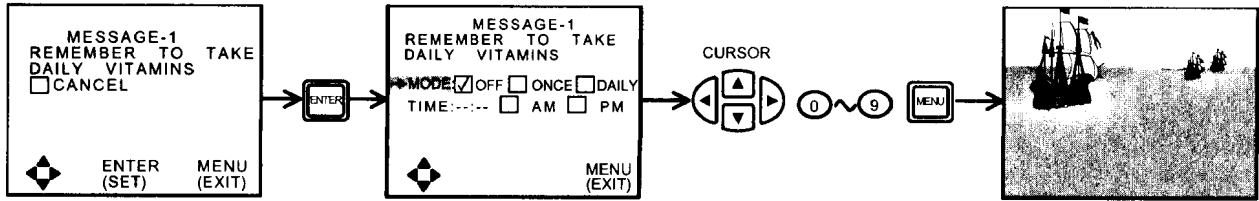
Use the CURSOR ▲, ▼ to select a letter or other character.

Use the CURSOR ◀, ▶ to change position.

Press ENTER when message is finished.

The asterisk (*) represents a blank space.

Move the CURSOR ◀, ▶ until (CANCEL) is magenta and press ENTER to erase message.



Use CURSOR ▲, ▼ to choose MODE or TIME.

Use CURSOR ◀, ▶ to set MODE when it is magenta. Your choice will be in blue.

Use the NUMBER buttons to set the time.

Press ENTER to start and MENU to exit.

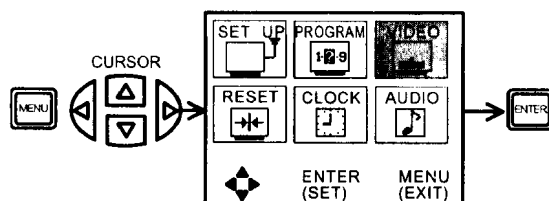
NOTE: Automatic Message-2 works in the same way as Automatic Message-1.



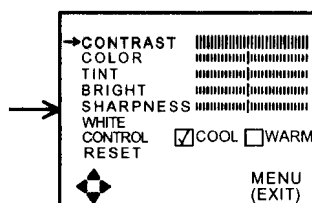
VIDEO



Select VIDEO to adjust picture settings, and to improve picture quality.



Use this feature to adjust contrast, color, tint, brightness, sharpness, and white control.



Press the CURSOR buttons to select and make adjustments.
The function to be adjusted will be in magenta.

- CONTRAST-** Use this function to change the contrast between black and white level in the picture.
- COLOR-** Use this function to adjust the level of color in the picture.
- TINT-** Use this function to adjust flesh tones so they appear natural.
- BRIGHT-** Use this function to adjust overall picture brightness.
- SHARPNESS-** Use this function to adjust the amount of fine detail in the picture.
- WHITE CONTROL-** Use this function to adjust the white balance (hue) of the picture to your own color preference.
When shipped from the factory, this is set to : "COOL". If you prefer a reddish screen, set to "WARM".
- RESET-** When RESET is selected, press ENTER to return video adjustments to factory preset conditions.

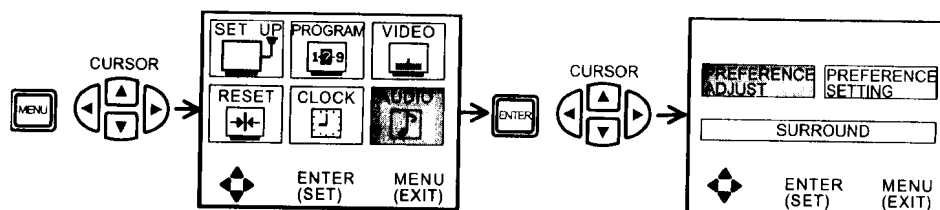
AUDIO



AUDIO

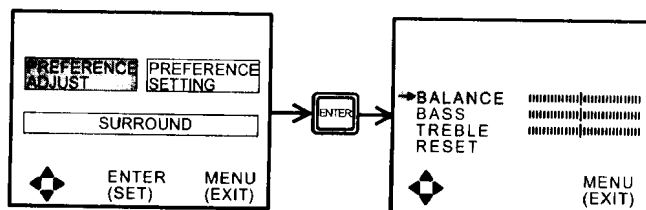


Select AUDIO to adjust the TV to your preference, to improve the sound quality, and to select special sound effects.



PREFERENCE ADJUSTMENT

Use this to set balance, bass, and treble.



Press the CURSOR buttons to select and make adjustments. The function to be adjusted will be in magenta.

BALANCE- This function will control the left to right balance of the TV internal speakers, the AUDIO TO HI-FI output, and the surround speakers.

BASS- This function controls the low frequency audio to all speakers.

TREBLE- This function controls the high frequency audio to all speakers.

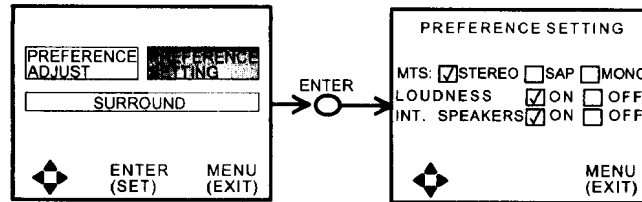
RESET- When RESET is selected, press ENTER to return audio adjustments to factory preset conditions.



AUDIO

PREFERENCE SETTING

Use Preference SETTING to improve the sound performance of your TV depending on listening conditions.



Use the CURSOR , to select a function. The function will be in magenta.

Use the CURSOR , to change function. Your choice will be in blue.

MTS MODE (Multi-Channel Television Sound) will allow you to select STEREO (a stereo broadcast), SAP (second audio program) which may be a secondary language, weather report, etc. or MONO (monaural sound) used when receiving a weak stereo broadcast.

The sources received will be displayed below the channel number. The source you select will be displayed to the left of the channel number. See example below for each selection when both stereo and second audio are received (monaural is always received).

STEREO SELECTED



SAP SELECTED



MONO SELECTED



LOUDNESS

This function will improve the quality of both low and high frequency sounds when listening at low volume levels.

INT. SPEAKERS

This function is useful if you prefer to use only speakers from a separate stereo system.

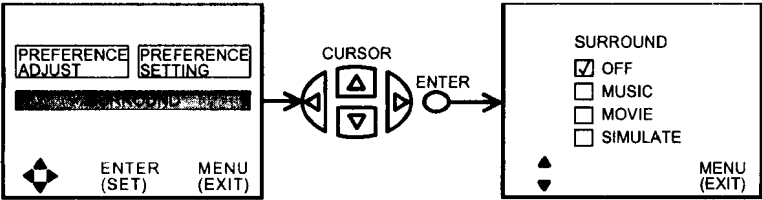


AUDIO

SURROUND

The following surround sound settings will reproduce the "live" sound you would hear in concert halls, movie theaters, etc. when you set up your speaker system as shown in the section on rear panel connections on pages 18, 19 and 22. The surround system is most effective with movies played on a stereo VCR.

Surround sound allows the viewer to enjoy sound which provides a feeling of "Presence" from stereo broadcasts and VCR tapes* recorded with stereo sound. Also a mono input, simulating a stereo, will increase the sound giving the listener simulated surround sound.



Use the CURSOR buttons to select surround setting.

SURROUND OFF

Use this for normal stereo/mono broadcasts.

NOTE: If sound is noisy when a stereo broadcast is received and the TV is set to the Surround mode, decrease the "Treble" control or turn the "Surround Off".

MOVIE SURROUND

Listener is surrounded by many sound sources such as a movie theater reproduction.

NOTE: Some TV systems do not transmit optimum audio channel separation which can reduce the effectiveness of the MOVIE SURROUND function.

MUSIC SURROUND

Resonant sound - Listener has the feeling of being in a concert hall.
At stereo input, the sound of music increases.

SIMULATE SURROUND

At mono input, sound is increased, simulating a stereo like Surround.

- * Your VCR must be a HI-FI or stereo Unit. See Page 21 for stereo VCR connection.
- * Set must be outputting stereo. (See MTS Mode: stereo on page 50.)



CARE OF YOUR HITACHI COLOR TV AND YOUR REMOTE CONTROL

DO

Dust the screen and cabinet with a soft cloth.

Clean the screen with a soft cloth moistened in warm water. Dry with a soft cloth. (A mild soap may be used if the screen is extremely dirty.)

Place your TV and remote control away from extreme heat, humidity and extremely dusty places.

Remove the plug from the wall outlet if your television set will not be used for a long period of time, for instance, when you go on vacation.

DO NOT

Do not clean your screen or cabinet with strong cleaners, polishes or a chemically treated cloth.

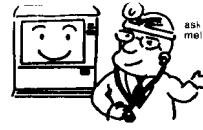
Do not place rubber or vinyl products or cellophane tape on your set.

Do not touch the screen too often.

Do not subject the Remote Control to shocks such as dropping it on the floor, etc. Physical damage to the precision parts may result.

Avoid placing the Remote Control in a high humidity place or getting it wet. Don't leave it on or near a heater. Excessive heat or moisture may cause the unit to cease operation.

When the batteries run down, remote control operation will become erratic or possibly stop altogether. Replace the old batteries with fresh "AA" size batteries.



RECEPTION PROBLEMS



- **IGNITION NOISE:**

Black spots or horizontal streaks may appear, picture may flutter or drift. Usually caused by interference from automobile ignition systems, neon lamps, electrical drills and other electrical appliances.



- **GHOSTS:**

Ghosts are caused by the television signal following two paths. One is the direct path and the other is reflected from tall buildings, hills or other objects. Changing the direction or position of the antenna may improve reception. Ghosting may also be caused by defects in the antenna system such as unshielded lead or connecting several sets to the same antenna without using multiple antenna couplers.



- **SNOW:**

If your receiver is located in the fringe area of a television station where the signal is weak, your picture may be marred by the appearance of small dots. When the signal is extremely weak, it may be necessary to install a special antenna to improve the picture.



- **RADIO FREQUENCY INTERFERENCE**

The interference produces moving ripples or diagonal streaks, and in some cases, causes loss of contrast in the picture.



CHECK HERE BEFORE CALLING FOR SERVICE

SYMPTOMS	CHECK THESE ITEMS AND TRY THESE ADJUSTMENTS									
	Be sure external connection is correct	Be sure power cord is plugged in	Be sure TV is switched "On"	Try another channel (station trouble)	Check antenna connections (back of TV)	Check antenna for broken lead-in wire	Adjust Picture control	Adjust Black level control	Adjust Color control	Adjust Tint control
No picture, no sound	•	•	•	•	•	•				
Sound OK, picture poor	•			•	•	•	•	•		
Picture OK, sound poor	•			•	•	•	•			•
Picture blurred	•				•	•				
Lines or streaks in picture				•	•	•	•			
Poor reception on some channels				•	•	•	•			
No color	•			•	•	•			•	
Poor color	•			•	•	•			•	•

SPECIFICATIONS



Features:

- Superfine Picture Quality
 - 700 Line Horizontal Resolution
- Dark Tint CPT with Self Dynamic Focus Gun except 35TX20B (Dark Tint CPT)
- Remote Transmitter
 - (Controls many VCR and Cable Box brands)
- P-in-P Functions (except 31CX5B)
- ICONS: Easy Graphics Guide
- Full set of Input Jacks, including S-Video
- Closed Caption Decoder
- Comb Filter, Wide-Band Video-Amp and White Control.
- MTS (Multi-Channel Television Sound) Stereo Broadcast Reception.
- 3D Surround Sound (3 Way)
- SES - Spatially Equalized Sound (A-Horn) 32CX7B
 - The SES system places the speakers inside acoustic chambers. The sound resonates through an acoustically matched baffle system, and projects through thin grills on either side of the TV screen. This system provides greatly improved sound quality, and proper sound imaging.

Screen Size: 35V (35 inches measured diagonally) 35TX20B
32V (32 inches measured diagonally) 32CX7B
31V (31 inches measured diagonally) 31CX5B, 31CX6B

Inputs:

- Power Input AC 120V, 60 Hz
- Power consumption (operating) 135W
- Power consumption (maximum) 180W
- Antenna input impedance 75 Ohm
- Channel coverage 181 ch.
 - VHF-Band 2~13
 - UHF-Band 14~69
 - CATV Mid Band A-5~A-1
 - A-1
 - Super Band J-W
 - Hyper Band W+1-W+28
 - Ultra Band W+29-W+84
- Video 1.0Vp-p, 75 Ohm
- S-Video
 - Luminance (Y) 1.0Vp-p, 75 Ohm
 - Chrominance (C) 0.286Vp-p, 75 Ohm
- Audio input impedance 47k Ohm
- Average input level 470mVrms
- Maximum input level 940mVrms

Dimensions:

	35TX20B	32CX7B 31CX6B 31CX5B
• Height (in.)...	30 ¹ / ₁₆	26 ¹ / ₁₆
• Width (in.)...	35 ³ / ₃₂	31 ¹ / ₁₆
• Depth (in.)...	24 ¹³ / ₁₆	22 ³³ / ₆₄
• Weight (lbs.)...	184	132

NOTE: Due to improvements, specifications in this operating guide are subject to change without notice.



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Should you have any questions regarding in-warranty service, operation or technical assistance, please contact:

Hitachi Home Electronics(America), Inc

3890 Steve Reynolds Blvd
Norcross, GA 30093
Tel: 404-279-5600

Hitachi Sales Corporation of Hawaii

3219 Koapaka St.
Honolulu, HI 96819
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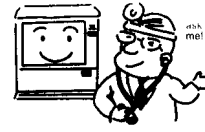


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